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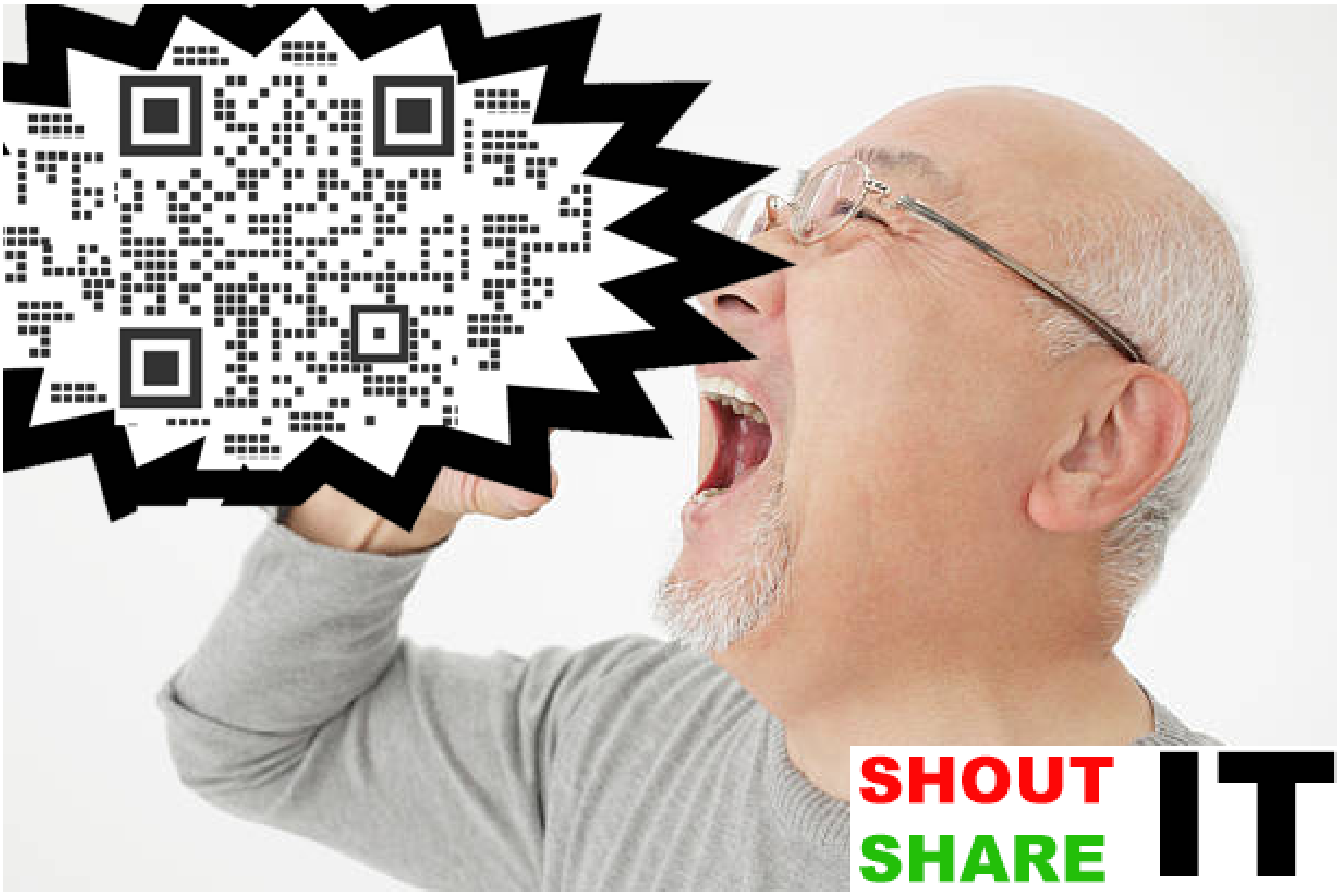
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Index for 1920

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In using this index the reader should not fail to note that it is divided into five departments, namely, General, Editorial, A. I. Root's writings, Contributors, and Illustrations. The index of General includes everything except Editorials, Illustrations, and A. I. Root's writings.

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HONEY MARKETS

The conditions surrounding the honey market have changed very little during the last month. Prices have remained practically stationary. The retail demand generally is good, and those best informed on honey market conditions the country over say they are expecting some advance in price, for honey is in a strong position considering the present severe sugar shortage.

Below we print prices as quoted by the Bureau of Markets, and by actual producers of honey.

U. S. Government Market Reports.

HONEY ARRIVALS, DEC. 1-15.

Medina, O. — 120 pounds from Ohio; 39,400 pounds from Idaho, 410 pounds from New York, 100,670 pounds from Wyoming, and 44,596 from Minnesota arrived.

SHIPPING POINT INFORMATION, DEC. 15.

San Francisco, Calif. — Cold, clear. Supplies light. Too few sales to establish market.

Los Angeles, Calif.—Demand improving, movement good, market active. Carloads f. o. b. usual terms. Extracted, white sage, supplies light, extra light and light amber sage 18½c, light amber alfalfa 16c. Beeswax, in l. c. l. lots, 42-43c.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding five days. Prices represent quotations for December 15 unless otherwise stated.)

Boston.—Supplies light, demand moderate, market steady. Sales by jobbers to grocers in small lots: Comb, New York, 24-section cases $8.00-8.50, Vermont cases 20 sections $6.75-7.50. Extracted and beeswax: no sales reported.

Chicago.—No carlot arrivals, no cars on track. Express receipts moderate from Northwest. Demand and movement moderate, market steady. Sales to jobbers: Idahos, Utahs, and Colorados, extracted, white alfalfa 19-20c; amber 17-18c per pound. Beeswax, demand and movement moderate, market steady. Sales to jobbers, unrefined 40-43c per pound.

Cincinnati.—2 Colorado arrived. Supplies light, demand and movement slow, market dull, few sales. Sales to jobbers: Comb, Western, 24-section cases $7.00. Extracted, no sales reported. Beeswax, supplies light, demand good, market stronger, average yellow 45-48c per pound.

Cleveland.—Demand and movement good, market active, prices slightly higher. Sales to jobbers: Western, 60-pound tins white clover 25-27c per pound.

Kansas City.—Approximately 56 cases arrived. Demand and movement moderate, market steady. Sales to jobbers: Colorado and Missouri, light amber, extracted, 23c per pound. Comb, $7.50-8.00 per case. California, light amber 22c per pound.

Minneapolis.—Supplies liberal, demand and movement limited, market steady. Sales direct to retailers: Western, comb, fancy light, 24-section case $7.50. Extracted, in 60-pound cans 20c, some high as 22c per pound.

New York.—2 Utah, 4 California, 1 New York, 11,500 pounds Louisiana, 2,250 pounds Massachusetts, and 25 barrels Florida arrived. Supplies moderate, demand light, movement slow, market steady. Sales to jobbers: Extracted, per pound, California, white orange 23-25c, light amber sage 20-23c. New York buckwheat 15-16c. Per gallon, Porto Rican, mostly $1.50. Comb, no sales reported. Beeswax, 225 pounds New Jersey, 1,000 pounds California, 650 pounds New York arrived. Supplies light, demand and movement moderate, market steady. Sales to jobbers, per pound, light 44-45c, dark 43-44c.

Philadelphia.—Since last report approximately 1,100 pounds New York, 660 gallons Florida, 1,400 gallons Cuba arrived. Demand and movement good, market firm. Sales to jobbers: Extracted, Florida, per pound, fancy light 21c, light amber 20½c. Cuban, light amber $1.67 per gallon.

St. Louis.—Supplies light, demand and movement slow, market steady. Sales to jobbers: Extracted, Southern amber, per pound, in cans 15-16c, in barrels 14-15c. Comb, practically no supplies on market. No sales reported. Beeswax, prime 40c per pound.

St. Paul.—Supplies liberal, demand and movement limited, market steady. Sales direct to retailers: Western, comb, 24-section cases, fancy light $7.50. Extracted, very few sales, in 60-lb. cans 24-25c per pound.

Denver. Approximately 15,000 pounds extracted arrived. Supplies moderate, demand and movement moderate, market steady. Sales to jobbers: Comb, 24-section cases No. 1, $6.75, No. 2 $6.30. Extracted, white 19½-20c, light amber 18½-19c per pound. Beeswax 38c cash, 40 trade.

EXPORT DISTRIBUTION OF HONEY, NOV. 1-30.

Total, 244,674 pounds; to Netherlands, 99,500; to Spain, 16,969; to Sweden, 3,290; to England, 31,540; to Canada, 66,919; to Panama, 1,000; to China, 1,792; to British India, 11,013; to Straits Settlements, 1,008; Dutch East Indies, 2,266; Japan 1,251; Philippine Islands, 6,232; to all other countries, 1,852 pounds.

George Livingston,
Acting Chief of Bureau.

Quotations From Producers.

The following are the opinions and quotations of actual honey-producers thruout the country received during the last few days:

ARIZONA.—Wholesale price producers are receiving: Extracted 15-16c; comb 25-30c. Retail price producers are receiving: Extracted 17-20c; comb 30-35c. There is a good demand for honey. The local demand is fair. Demand from big buyers is good but not much offered by producers. Most are holding. About 15 per cent of the crop is already sold.—W. I. Lively.

BRITISH COLUMBIA.—Wholesale price producers are receiving: Extracted 30c; comb 32c. Retail price producers are receiving: Extracted, 1-lb. jars, 50c; comb, 4-lb. cans, $1.75. There is a good demand for honey no doubt helped by sugar shortage. Demand is both local and from big buyers. About 75 per cent of the crop is already sold. —W. J. Sheppard.

CALIFORNIA.—Not any honey in hands of producers that I know of. Stores have only the comb shipped in and sell at 35c per section. The demand for honey is not as usual for this time of year, but I could sell if I had on hand for my retail trade. All the local crop has been shipped out and sold.—M. H. Mendleson.

SOUTHERN CALIFORNIA. — Wholesale price producers are receiving: Extracted 19-20c for white; comb, very little to be had. Retail price producers are receiving is 25c for extracted. There is not a good demand for honey. About 90 per cent of the crop is in the Exchange. Most outsiders have not found ready sale.—L. L. Andrews.

COLORADO.—Wholesale price producers are receiving: Extracted 18c; comb $6.00 per case down. Retail price producers are receiving for extracted honey 20c. Most sales of comb honey now are by small producers, who sell for anything they can get, from $6.00 per case down. There is a good demand for honey, both local and shipping. About 75 per cent of the crop is already sold; or perhaps a little more.—J. A. Green.

FLORIDA.—No extracted to sell at wholesale; no comb produced. Retail price producers are receiving for extracted honey is $2.00 per gallon, $1.00 for 5-pound pail. An unusually good local demand. I suppose I am the only beekeeper in this county (DeSoto) that has any honey for sale.—Ward Lamkin.

FLORIDA.—Wholesale price producers are receiving: Extracted 16-18c; comb 30-35c per 10-12-oz. section. Retail price producers are receiving: Extracted 25-35c; comb 35-50c per 10 to 12-oz. section. There is a good demand for honey. About all of the crop is already sold.—C. H. Clute.

FLORIDA.—No honey for market at wholesale. Producers are receiving for extracted honey 20c at retail; no comb honey. The local demand is very small, and there are no big buyers. About 90 per cent of the crop is already sold. Bees are in unusually good condition for winter, and very little, if any, feed will be needed.—R. L. Tucker.

IDAHO.—Wholesale price producers are receiving: Extracted, small lots 20c, carloads held at 20c; comb, fancy, carlots, $6.50, No. 1 $6.25, No. 2 $6.00. Few retail sales. Demand for honey from big buyers light, improving. About 60 per cent of the crop of comb is already sold, and 10 per cent of extracted.—E. F. Atwater.

ILLINOIS.—Wholesale price producers are receiving: Extracted 25c; comb, No. 1 30c, No. 2 25c. Retail prices producers are receiving: Extracted 30c; comb 35c. There is a good local demand for honey. About 50 per cent of the crop is already sold.—A .L. Kildow.

INDIANA.—Retail price producers are receiving: Extracted 35c; comb 40c. There is a good local demand for honey. About 90 per cent of the crop is already sold. Necessary to buy outside in order to fill local orders.—E. S. Miller.

KANSAS.—Wholesale price producers are receiving for extracted, 18-20c; no comb honey. Retail price producers are receiving for extracted honey is 40-50c. There is a good local demand for honey. About 75 per cent of the crop is already sold.—A. D. Raffington.

MARYLAND.—Wholesale price producers are receiving: Extracted 22c; comb 25-28c. Retail price producers are receiving: Extracted 25c in cans, 35c in 1-lb. bottles; comb 30-40c. There is a fair local demand for honey. Almost all honey has left the producer. Wholesale and commission houses have some left; retailers also have a little.—S. G. Crocker, Jr.

MASSACHUSETTS.—No honey for sale at wholesale either comb or extracted by producers in this section. Retail price producers are receiving for extracted honey is 35c; no comb honey for sale. This is not a comb-honey producing State. Demand for honey is not as good as we have reason to expect, and is all local; no big buyers. About 80 per cent of the crop is already sold.—Omer M. Smith.

MICHIGAN.—Wholesale price producers are receiving for extracted, 20-21c; no comb on market. Retail price producers are receiving: Extracted 35-40c; comb, 45c a section. There is a good demand for honey, principally local. About 75-80 per cent of the crop is already sold.—R. H. Kelty.

MISSOURI.—Wholesale price producers are receiving: Extracted 25-30c; comb $7.50 to $7.80 per case. Retail price producers are receiving: Extracted 30-35c; comb 50-60c. There is a good local demand for honey and also from big buyers. About all the crop is already sold.—J. W. Romberger.

NEBRASKA.—Wholesale price producers are receiving: Extracted 24-26c; comb 30-32c. Retail price producers are receiving: Extracted 35-40c; comb 45-50c. There is a fair demand for honey. Practically all the crop is already sold.—F. J. Harris.

NEW JERSEY.—Wholesale price producers are receiving: Extracted 21c; comb $3.50 per dozen. Retail price producers are receiving: Extracted, $1.25 per quart; comb, 40c. There is a good local demand for honey. Practically all of the crop is already sold.—Elmer G. Carr.

OHIO.—Wholesale price producers are receiving for extracted honey is 25c; no comb on the market. Retail price producers are receiving for extracted honey is 30c. There is a good local demand for honey. Nearly all the honey is sold at the present writing except some small lots, which are demanding a good price. The market is very active, and beekeepers are looking for prices to remain at a high level as long as sugar is short and the prices soaring. —Fred Leininger & Son.

ONTARIO.—Wholesale price producers are receiving: Extracted, around 17c for dark and 25c for light; comb, from $2.50 to $4.00 a dozen, depending on grade. Retail price producers are receiving: Extracted, from 20-40c depending on the package and quality of honey; comb, from 30-40c a section. There is a good demand; most beekeepers are sold out. The demand now is mostly local; large producers have been generally sold out for some time. About 90 per cent of the crop is already sold.—F. Eric Millen.

WASHINGTON.—Wholesale price producers are receiving: Extracted 17-20c; comb $6.00 per case. Retail price producers are receiving for extracted honey is 20-25c. The demand for honey is not good. Roughly estimating, there is about one-third already sold.—Geo. W. B. Saxton.

WISCONSIN.—Wholesale price producers are receiving: Extracted 20-25c; comb, none on the market. Retail price producers are receiving: Extracted 30-40c; comb, 35-45c; only a very limited amount on hand. There is a good local demand and also from big buyers. About 90 per cent of the crop is already sold.—H. F. Wilson.

For Bee and Queen Rearers to Read

Altho the Wildflower Apiaries are no longer in the business of furnishing queens and bees, and have nothing to sell, we want bee and queen rearers to read the following letter written to Gleanings at the close of the last season:

Little Rock, Ark., Sept. 17, 1919.

Gleanings in Bee Culture, Medina, Ohio.

Gentlemen:—Beg to report that we have cleaned up all bee business on hand today. We have been very careful not to let anybody's order or his remittance get lost or misplaced, and insofar as we know have now shipped every fellow his queen bee or else returned to him his SAME postoffice money order, express money, draft, or check. Rest assured, our friends, that a little advertisement in your columns brings marvelous results and marvelous correspondence and experience as well. We must add to the expression "marvelous correspondence and experience," a heartfelt AMEN. We have tried to live up to our agreements, but have not always succeeded the VERY best. Last year we received no kicks at all, but have had several this year—and today a very unjust kick. But we have tried our best to always presume the customer right, and have tried to conduct ourselves accordingly.

Should any complaints ever reach you, we would appreciate it if you will kindly DIRECT the thing to be done to make it right, and we will endeavor to comply with your wishes if possible.

Very truly yours,
Wildflower Apiaries.

P. S.—The very best way to choke a chronic kicking customer to death is just to send back to him his SAME postoffice money-order, draft or check.

Advertisements Received too Late to Classify.

We have a very choice lot of white clover honey for sale at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—Fine 10-acre farm, half cultivated. Chickens, cows, incubators, household goods—everything, $2,500. A. Wieboldt, Olga, Fla.

FOR SALE OR TRADE.—One minute postal camera, and one Boswell stereopticon outfit.
Van's Honey Farm, Hebron, Ind.

FOR SALE.—Good second-hand 60-lb. cans, two to the case, used only once, 60c per case, cash with order. E. B. Rosa, Monroe, Wisc.

FOR SALE.—Pure Italian queens. Dependable breeding stock my specialty. Bees in one and two pound packages. Circular free.
J. E. Wing, 155 Schiele Ave., San Jose, Calif.

WANTED.—Two-frame Cowan extractor in fair condition, for Langstroth frame. Write
J. M. Jacobson, Story City, R. D. No. 1, Iowa.

BEE SUPPLIES IN DIXIE

Dependable goods with prompt service. Save time and transportation costs.

L. W. Crovatt, Box 134, Savannah, Ga.

MONEYCOMB

The ALUMINUM HONEYCOMB

Moneycomb is a Moneycomb because it's a Money-making Honeycomb. Moneycomb users are Money- and Honey-making Beekeepers. That's why Moneycomb Boosters are found in every corner of the civilized world. You'll join the ever increasing Moneycomb Boosters' Club too the minute you give your bees a chance to be honey-producers instead of wax-builders

10 or 10,000 Moneycombs

will

1 Produce more Honey
2 Extract cleaner and faster
3 Not sag
4 Not melt down
5 Raise more brood
6 Control disease
7 Not be destroyed by moths or rodents
8 More than pay for themselves during one honey flow

Every Gleanings' reader is acquainted with Harry Warren of Nevada—

WESTERN UNION TELEGRAM.

Fernly, Nevada, Nov. 12, 1919.

I am Field Manager of 100 apiaries of Union Honey Co. and have carefully watched and observed the advantages of your aluminum honeycomb and have satisfied myself beyond any doubt it is all and more than you claim for it. We are in the market for 12,000 of your combs. Will be at Davis, California, November 17th and would like to meet your Manager for purpose of arranging this deal.

HARRY R. WARREN.

Why hesitate to order today, specifying future shipping date? Our factory is now fully equipped and your order will be shipped immediately on receipt. Made in Langstroth or Hoffman sizes at 60c per frame f. o. b., Pasadena. Write for prices on both shallow and Jumbo sizes. Discounts on large orders.

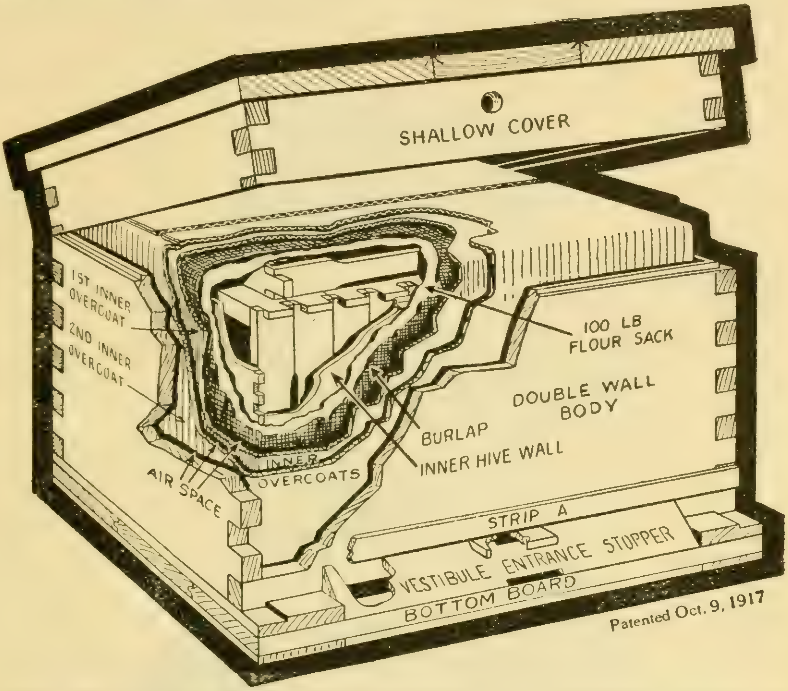
Booklet "B 1," describing "Moneycombs," mailed on request

THE ALUMINUM HONEYCOMB CO.

FACTORY AND OFFICE

CHESTER AND COLORADO STS. PASADENA, CALIF.

Winter Problem Solved by the Hive with an Inner Overcoat . . . .



Patented Oct. 9, 1917

NOW FURNISHED WITH JUMBO DEPTH OR STANDARD HOFFMAN FRAMES

In January of this year, Mr. Pellett, the associate editor of the American Bee Journal, wrote us suggesting that we place on the market, Protection Hives with Jumbo Depth Frames. He stated that if we could furnish them with 1½ inch spacing, that in his opinion we would have very nearly an ideal hive and if he was again to engage in commercial honey production, this would be the hive that he would want. Numerous like requests from other beekeepers for this same equipment have been received.

We are now prepared to furnish Protection hives with Standard Hoffman Frames the same as in the past, or Standard Jumbo Depth Frames ten to the hive body, or those with 1½-inch spacing nine frames to the hive body. The same size covers, bottoms, and rims as used in the past will be supplied, the only difference will be in the depth of the hive body when the Jumbo frame is wanted.

Standard single wall hive, comb or extracted honey supers or bodies in the 10-frame size, are regular equipment for Protection Hives. Send for a new special circular of the Protection Hive which has been just issued.

TIN HONEY PACKAGES.

2 lb. Friction top cans, cases of 24
2 lb. Friction top cans, crates of 612
2½ lb. Friction top cans, cases of 24
2½ lb. Friction top cans, crates of 150
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 203
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 113

Special Prices.

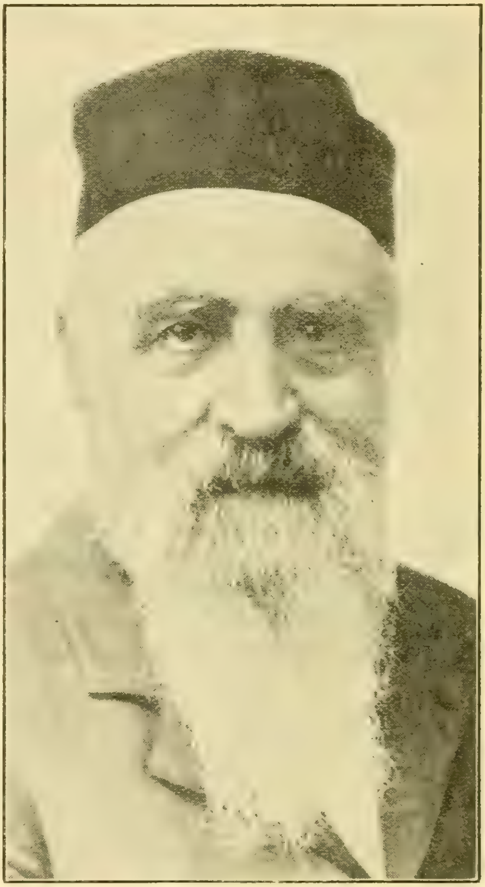
Crates of 100 five-pound pails......	$ 8.00
Crates of 200 five-pound pails......	15.00
Crates of 100 ten-pound pails......	12.50
Sixty-pounds cans, two in a case, per case	1.15

Shipments made from Michigan, Ohio, Illinois and Maryland factories.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

THE LARGE HIVE

Was Championed and Used Extensively by Charles Dadant as Early as 1868, and He Had Recognized Its Advantages Even Earlier Than That



CHARLES DADANT

Not satisfied with either the ten-frame of Langstroth nor the 8-frame hive of the size advocated by Quinby, he experimented with different sizes and styles before adopting a hive of ten frames, Quinby size.

Some of the hives used in his experiments in large numbers were:

8 to 14 frame Langstroth.

8 to 16 frame Quinby.

10 to 20 frame Debeauvois with frames 12 x 12.

Coffin-shaped hive with a circular frame.

Hives with frames 18 x 18 inches.

His ideal hive embodied the following points:

1. A deep frame to conform to the egg-laying circle of the queen.

2. A large, compact brood chamber in one story capable of accommodating the most prolific queen.

3. Ample ventilation by means of 1½ inch spacing of frames.

4. Excellent for wintering on account of the 1½ inch spacing and large amount of honey over the cluster in the deep frame.

5. Swarm control through the wide spacing and large brood chamber.

6. Shallow 6¼ inch super frames for storage.

Our more than fifty years experience with bees in large hives convinces us that this is the hive for *extracted honey.*

The Original Dadant Hive he advocated and used did not adapt itself to the great amount of Langstroth equipment already in use. Moreover, it was very expensive. To remedy these two drawbacks we have evolved and now offer

THE MODIFIED DADANT HIVE

1. Eleven Frames, Langstroth Length, Quinby Depth.
2. 1½ inch spacing of frames for swarm control.
3. 6¼ Extracting frames.
4. Dovetailed body, regular reversible Cypress bottom and metal roof cover with inner cover
5. Langstroth equipment easily used in connection.

If you want strong colonies, large honey crops, little swarming and good wintering, we believe this is the hive for you. *Write today for descriptive booklet and prices.*

DADANT & SON, HAMILTON, ILLINOIS

GLEANINGS IN BEE CULTURE

JANUARY, 1920

EDITORIAL

A New Old Way of Wiring Comb Foundation.

IN AN EARLY ISSUE we expect to give "a trick of the trade" in wiring foundation that one man estimated would be worth $1,000 to him. It will enable the beekeeper to increase the size of his regular hive so far as breeding capacity is concerned, without enlarging the hive, and at the same time will enable him to get a better control of swarming. The beauty of the "trick" is that it has been tested for several years by hundreds of beekeepers, **and it works.**

* * *

Dr. Miller Writes Adieu.

JUST AS GLEANINGS is going to press, we receive a characteristic letter from Dr. C. C. Miller. While the message will bring deep regret to that great host of friends and readers who have so long enjoyed the Doctor's wisdomful writings, because now these can be expected no longer, yet the letter itself brings assurance of the longer sparing of his life. That is much to be thankful for.

The Doctor writes to us as follows:

Marengo, Ill., Dec. 16, 1919.

Dear Folks:—I had some confidence that I could get out a bunch of Straws for January Gleanings, and, as usual, depended on the reading of the December number for inspiration for the most of them. But when I had finished reading the December number I had *just one straw!*

So it seems it's no go, and Straws may be considered a thing of the past; for, even if I could do the work, it would be thru too much effort, and extra effort, either physical or mental, is taboo under penalty of being thrown back where I was two months ago or worse.

Anyway, I've had a good time in the past, and since I've been sick the kind words from Medina and elsewhere have been very precious to me, my only regret being that I cannot personally answer each one. If the next world is any better than this —and I'm sure it is—it must be a very fine world.

With very best wishes to every one, I am

Cordially yours,

C. C. Miller.

* * *

Price of Sugar and Honey.

IT IS GENERALLY considered that there is an indirect relation, or, perhaps, more exactly, a ratio, between the price of sugar and the price of honey. If this is true it means that one is somewhat the competitor of the other—that is to say, both are supplying the demand of the public for something sweet. As the price of sugar goes up, especially if it is hard to get, other things being equal, the price of honey may become firmer even if it does not advance. This does not always follow, however. There are other factors that enter into the general proposition—so much so that it is very difficult to forecast what the price of honey will be, based on developments in regard to sugar.

During the last few weeks sugar has been becoming more and more scarce, and the price has been advancing. Sometimes there has been the belief that sugar would go down, especially after the holidays, when, it is said, there would be large supplies. One of the uncertainties has been whether the Sugar Equalization Board would be continued. If it should lapse by virtue of limitation January 1, it has been predicted that the price of sugar will mount rapidly to 15, 20, or even 25 cents a pound.

At this writing, (December 15), the McNary bill, which extends the life of the Sugar Equalization Board thru 1920, has passed the Senate. It is the belief that the House will pass it likewise, with the result, if the President approves, that the Board will be continued. In the meantime we are told that the chairman of the Board says he will resign, if the Board is continued, as it is too late now to put in restrictions on the price and distribution of sugar. Just what is going to happen seems to be all in a muddle.

From the United States honey market reports, published in the Honey Column, it appears that the market on honey is slow, and this in spite of the fact that sugar has been trying to climb upward, and doubtless will climb, if it gets a chance. Why has not honey taken a similar course?

Senator Pomerene of the United States Senate claims that the administration took the advice of a political economist, who advised against the purchase of the entire Cuban crop when it could have been bought at 6½ cents, instead of taking the advice of a practical business man who would have urged the purchase of this sugar. It is on account of this, he says, that millions of pounds of Cuban sugar went to Europe instead of coming to this country. Would this have the effect of making Europe less inclined to buy honey? We do not know. Again, from Government market reports it appears that the export shipments of honey from this country have been comparatively light. In the meantime it has been suggested that other countries which, on account of wartime conditions, were unable to obtain ships, have this year been sending their stocks, held in reserve, to Europe, and that this may possibly have lessened the demand for American honey. We do not know.

There have been a good many factors that have been working; and what the result will be seems to be somewhat shrouded in doubt. There is some intimation that sugar may be scarce, even tho the life of the Equalization Board should be continued and the price held down. It is our opinion that the beekeepers of the country do not need to be alarmed. If they do not lose their heads and dump all their product on the market at one time, it is our opinion that our domestic needs will take up the honey unsold in spite of what Europe may or may not do, and in spite of what sugar may or may not do. In the meantime the A. I. Root Company has gone in for a heavy honey-advertising campaign, taking as much as full-page advertising in the Ladies' Home Journal and other magazines of its class. This will mean that other bottlers will share some of the benefits of this advertising. Honey ought, therefore, to get on the table of the consumer. What the future price of honey in carlots will be is conjectural at this time; but Gleanings does not expect that there will be a slump in prices.

* * *

Metal Comb Foundation in Great Britain.

MUCH INTEREST has been stirred up in England over the subject of comb foundation made of metal instead of beeswax. Just how thick this metal foundation is, and how it is made, we are not able to say; but apparently our British cousins, or at least some of them, look with much favor on the new product. **New** product, did we say? Rather it is an old idea revived. Our Mr. A. I. Root, for example, away back in 1878, 1879, and 1880 experimented with metal foundations and was able to get combs built from them, and, as the writer now remembers, brood was raised and the bees stored honey in them. But the coldness of the metal base, and the expense of the product, caused him to drop it. He then tried wood-veneer foundation; but the difficulty of manufacturing the article caused him to drop that likewise, notwithstanding he succeeded in having the bees build combs on it. During the past summer our Mr. Mell Pritchard tried wood-base foundation again, and succeeded in getting combs. But the combs were not perfect, because the foundation, or, rather, the cell-wall indentations on the wood veneer, were inperfect.

Very recently various substitutes for wax in comb foundation have been tried out in California; but with what degree of success we are not yet advised. It appears that while the combs built from "pure metal foundation" in England, have not yet gone much beyond the experimental stage, the result seems to be hopeful. The claims made for it are these: Durability, sterilization in case of disease, safety of bees in moving, and elimination of drone-cells. The claim might also be made by our friends across the big pond, that such combs would be stronger for extracting, allowing of a higher rate of speed in the extractor so that the combs would come out drier.

A recent talk with Dr. Phillips of the Bureau of Entomology would indicate that he does not believe in the practicability of metal-comb foundation, as he thinks it will dissipate the heat of a cluster of bees more than the aluminum comb.

The McDonald Metal Combs.

There seems to be a desire if not a movement on the part of beekeepers all over the world for a foundation that will not stretch while being drawn out into comb, so that all the cells will be worker. There is no doubt but that a comb that will stand rough usage in the extractor, and that will admit of a high rotary speed, is desirable. And this brings up the question of the McDonald aluminum combs. We have made no statement concerning these, as we desire more time to test them. However, a number are asking what has been the result of our experiments **thus far.** We can get the queen to lay in them, and the bees will develop the eggs into brood; but, apparently, neither likes the metal combs as well as they do those made entirely of wax. In one case last summer, where we confined a colony on nothing but metal combs the brood-rearing was spasmodic and sporadic, and finally the colony dwindled down to almost nothing. There was no trace of any disease. We are not saying that others can not succeed and have not succeeded in getting brood in these combs. It is our opinion thus far that the future of the combs lies more in the storage of honey for general extracting purposes.

We have on the metal combs in winter quarters two colonies, which we are watching with much interest.

The metal combs turned out by the McDonald Aluminum Honey Comb Co., are a marvel of mechanical perfection; and if the bees will store honey in them as readily as they will in combs of wax, there might be a great future for them. Our experiments thus far would lead us to feel, however, that for straight brood-rearing or storage purposes the bees **prefer** combs made of wax. We may, however, revise this opinion later on. Gleanings has all along pursued the policy of watchful waiting. For the present, at least, we do not wish anything said above to be construed as saying that metal combs will not be a success. We don't know. We are, at present, awaiting the verdict of the bees.

UNCLE SAM'S HELPING HAND

What the Bureau of Entomology Has Done and Is Doing for the Beekeepers of the United States

By E. R. Root

THE readers of Gleanings are all more or less familiar with the work of the Bureau of Entomology at Washington in beekeeping, but it may be of interest to tell some of the more personal things about this office that do not appear in the official correspondence or in the bulletins. I have visited the office many times and have come to be well acquainted with everybody there, and therefore take this opportunity to introduce some of these folks who may not be so well known to all of our readers and to tell what they are doing.

The office is located in Somerset, Md., a suburb of Washington. It is easily reached from the city by trolley, and mail is delivered daily from the Bureau's office by messenger. These conveniences and a hard-worked telephone keep the office in close touch with the main office of the Bureau and with other offices of the Department of Agriculture. Perhaps it will be well to add that mail should be sent to the Department at Washington and not to Somerset.

The illustration shows the building in which the office is housed. This was built as a residence and has been leased by the Department for a period of 10 years. It is, in most respects, ideally suited to the needs of the office. The experimental apiary is

These are the employees at the Bee Culture Office at Somerset, Md. Top row (left to right)—Mrs. Marian A. Carter, chief clerk; Mrs. Faith P. Gaddess, clerk; Miss Ethel L. Coon, clerk; Miss Mabelle Michener, clerk; Mrs. Margaret B. Shoemaker, clerk. Middle row (left to right)—Lloyd R. Watson, formerly of Alfred, N. Y., then Connecticut extension man, but now in office; Mr. Stone. Lower row (left to right)—Geo. S. Demuth (you know him), G. H. Cale, formerly with Maryland Agricultural College, in office since beginning of war; A. P. Sturtevant, bacteriologist.

located directly behind the house, but does not show in the picture. The 60 or more colonies used by the office are arranged in groups of four during the entire year, and, as might be expected, are heavily packed in winter in quadruple cases. The men at the office rather pride themselves that most beekeepers think them cranks on the winter problem, but at any rate they practice what they preach. They get results too, as I can certify. Of course, almost anything is apt to happen to the colonies in the apiary, for they are devoted to experiments and not to honey-production. The vicinity of Washington is not considered a good location for beekeeping; yet it is probable that if the Bureau apiary were operated for honey alone the average crop would be in the neighborhood of 100 pounds annually, and it would come almost every year, for the management of that apiary has gone a long way toward wiping out bad seasons. But that is another story for which I do not have time now.

The grounds of the office are beautifully laid out and planted. There is nothing artificial about the grounds, which look just as if Mother Nature had done the planting, yet there are many different species and varieties of plants there which are not native to the locality. The original owner of the grounds, Dr. Jas. A. Nelson, formerly of the Office of Bee Culture, is really a landscape artist and now his former associates are enjoying the results of his labors.

Inside the building we find five men and five women at work. These represent the office staff and, as I shall show later, there are more men out in the field all the time. The head of the office is Dr. E. F. Phillips, who has had charge of the office for the past 14 years. It does not seem that long since I first met him some 16 years ago, then a student at the University of Pennsylvania. At that time he came to our apiary to do some original research work. I saw that he had the making of an instructor in beekeeping at some one of our colleges. Later on, I had the honor and pleasure of recommending him for a position under Benton in the Bureau of Entomology, Washington, D. C. As our readers know, it was not long before he was in charge of investigation work in bee culture in the Bureau.

On the last occasion that I visited the office Dr. Phillips was absent on the road. However, the remainder of the office force were lined up before the camera and the result is here presented. C. F. M. Stone of Pasadena, Calif., was with me, and I insisted on his getting into the picture. He and the head of the office weigh about the same; so he may be considered holding down that position—in the picture at least.

On the steps from left to right are George S. Demuth, well known to all of our readers; G. H. Gale, a graduate of the Massachusetts Agricultural College, formerly of the Maryland Agricultural College, but with the office since the outbreak of the war; and Arnold P. Sturtevant, who has charge of the bee-disease investigations of the office. Standing on the steps are: Lloyd R. Watson, formerly of Alfred University and later extension field man in beekeeping in Connecticut, but with the office since July 10 (by the way, he is another man I had the honor of recommending to the Bureau); Mrs. Marian A. Carter, chief clerk of the office, whose initials, mac., are found on so many of the letters that are sent out from the office; Mrs. Faith P. Gaddes, clerk; Miss Mabelle Michener, clerk and dictaphone operator; Miss Ethel L. Coon, clerk and dictaphone operator; Mrs. Margaret B. Shoemaker, file clerk; and on the right end our friend, C. F. M. Stone of Pasadena.

Dr. E. F. Phillips, National Apiarist.

Let us see what these folks do whose work comes closest to the beekeepers of the country. Mr. Demuth is the author of the bulletin on Commercial Comb Honey Production and has another bulletin soon to be issued which will interest every beekeeper in the country. He was engaged with Dr. Phillips in the investigation of wintering, but since the country went into the war he has spent most of his time in promoting honey-production. In fact, during the war almost all the research work was stopped and the entire staff was engaged in extension work. Mr. Demuth has taken part in all of the extension short courses given by the Bureau. Mr. Cale handles especially the business connected with the extension work of the office and is preparing now some material, which will soon be published, to assist in certain parts of this work. Mr. Sturtevant, whom I have mentioned before, is a bacteriologist with a vision of beekeeping, which makes the work that he is doing much more valuable than if he were simply a bacteriologist. He did such good work that I recommended that Phillips send him to California last winter to clear up the confusion in the matter of bee diseases. This Phillips did. The beekeepers of California, almost to a man, will acknowledge that he did them a splendid service. I recommended that he be sent again and now I am informed that he will attend the extension schools to be held this fall in California and other Western States to present to those in attendance the latest and best information on the important subject of bee diseases.

Mr. Watson is chiefly engaged at present on correspondence. It is the policy of the office to put the newest man on this work in order to get him trained in giving information accurately and fully, and to familiarize him with the problems of the office. It is no reflection on Mr. Watson to say that when he first went to the office a considerable number of his letters did not get by the scrutiny of the older men in the work. This happens to every new man. Mr. Watson has been a beekeeper for years and has had experience in teaching the subject. He is starting in on some investigations which will prove of much interest.

I shall not embarrass the clerical force by discussing them separately, but will put them all together by saying that if at any time there is occasion to find anything in the files or in any of the other numerous records of the office, the clerks can find it at once.

Suppose we follow a letter written to the Department of Agriculture on some phase of beekeeping. It is sent out to Somerset as soon as it reaches the Department. The mail is all opened and stamped with the time of receipt by one of the men. He also sorts the letters out to the different men who take part in the correspondence work. Matters pertaining to extension work usually go to Mr. Cale; general beekeeping questions go to Mr. Watson; letters involving some search as to the more specialized beekeeping methods will probably go to Mr. Demuth; while all administrative matters, some of the extension letters, and all matters involving scientific questions go to Dr. Phillips.

Frequently before an important letter is answered it is discussed by two, sometimes three, of the men. Something especially interesting or puzzling may be laid aside until the noon hour when all the men have lunch together and the question is talked over to decide on the best course of action or the best way to give the fullest and most accurate information. I have had the pleasure of being present at some of those conferences. The letter, after discussion, is then dictated to a machine and is transcribed by one of the clerks. When ready for signing it goes to Dr. Phillips, who reads all the mail before it goes out to be sure that everything is as it should be. When you get a letter from Dr. Phillips, perhaps he never saw the letter until it came to him for signature, but you can always tell who dictated the letter and who transcribed it by looking at the initials in the lower left hand corner. By reviewing all the letters as they go out, Dr. Phillips (or some one else in his absence) is able to know what is going on in the office and is kept in touch with what is going on outside the office in the beekeeping world.

If the letter accompanies a sample of brood, it and all previous correspondence from the sender go with the sample to Mr. Sturtevant who makes the necessary examination, records it on a card for the purpose, and then turns the letter and his report over to one of the men to report the result. Of course, a careful record is kept of all samples sent in.

Every man connected with the office, whether on the field force or the Washington staff, is asked to send in reports of the beekeeping conditions in every county visited. They record the soil, character of the agriculture, main and minor honey plants, present development of the beekeeping industry, and all other information which may at some time be useful in answering inquiries from that county.

All letters received at the office are filed with a copy of the reply, these being arranged under the correspondent's name.

This is the National Bee Culture's new home at Somerset, Md.

There is also in the office a card index of beekeepers, which contains at least 150,000 names. With the limited supply of bulletins published, it is impossible for a copy of each bulletin to be sent to each name on this list, and the office does not maintain a mailing list for the bulletins. These lists were extremely useful during the war in sending our circulars to beekeepers and are used from time to time in announcing extension short courses in beekeeping conducted by the office in co-operation with the various extension divisions. Each card contains a record of the circulars and bulletins that have been sent out to each beekeeper, and when a letter is written from the office it is possible to tell what bulletins the correspondent already has—if not lost.

One of the lines of work undertaken early by the office was the investigation of the brood diseases of bees. Dr. G. F. White was engaged for this work soon after Dr.

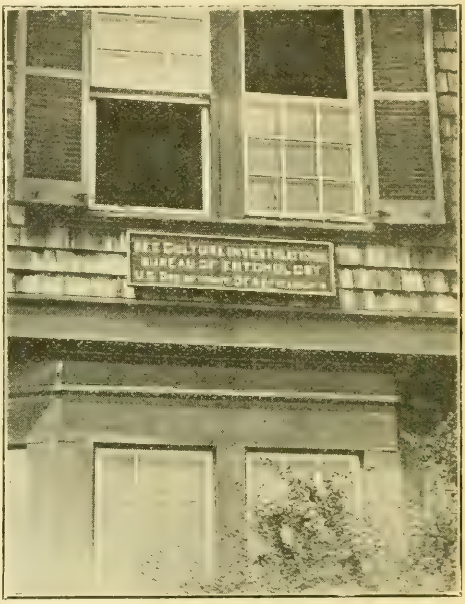
E. F. Phillips took charge of the office, and he stayed on this investigation until he was transferred from the office in 1914. After that Dr. A. H. McCray took up the work and continued until he left to become State Bacteriologist of Montana. When Doctor McCray left, A. P. Sturtevant, who was then at the Massachusetts Agricultural Experiment station working on bee diseases, came to Washington and since then he has had charge of the work. In all 6,800 samples of suspected or diseased brood have been examined for beekeepers and apiary inspectors since the work began in 1906. More samples are received now than ever before.

As a result of the work on brood diseases the causes of the three brood diseases have been determined and much valuable information has been gathered together concerning the methods of treatment, the distribution of the diseases in the United States, and other facts which have more or less bearing on the control of the diseases.

The Bureau has also played a large part in having the right kinds of laws passed by the various States for the control of these diseases. The early laws placed the power of inspection in the hands of an inspector appointed by the governor of the State. Naturally this sometimes led to the appointment of men who had served the governor faithfully during elections. Not all of the early inspectors were politicians, but some of them were. It was evident that inspection needs careful supervision in order that the work might cover the State and that favoritism might not be shown to the friends of the inspector. The Bureau of Entomology early advised that the inspection be placed under the supervision of the State entomologist's office in each State. At first beekeepers were inclined not to approve the plan, but now that it has been in operation in several States for years it is evident that it is the best plan that can be devised.

It is the function of the scientific investigator to explain methods, to tell us why the methods work rather than to discover the methods themselves. So in the matter of bee diseases. Before the Bureau of Entomology did its work on bee diseases we used the shaking treatment for American foul brood without knowing why it is necessary. In the case of European foul brood the approved methods of treatment were perfected by beekeepers after the work of the Bureau was begun. It is true that some European beekeepers had used the requeening method for one form of disease years before, but they did not know that there are two diseases, and, as a result, the advice was almost useless. The Bureau of Entomology has added much to our knowledge of the way in which the latest methods for the control of this disease may be employed; and now that these methods are well known, the Bureau has been able to show how the disease may be prevented by the application of good beekeeping practices. It can not be stated too strongly that prevention is more important than cure, and this is the chief effort of work of the Bureau with this disease.

When the bee-disease work had progressed to the point where it was being handled well by the various States, Dr. Phillips and Mr. Demuth took up the wintering problem. This work is well known. Here again no new methods of wintering have been devised, but the result of this work is that now we know **why** some methods are successful and **why** others are failures. It is the ''why'' that counts, and that is what the scientist is always after. Not only have they been working for the past several years on this problem, but they have tried their best to get the beekeepers of the country to adopt intelligent methods of caring for their bees.



Here is the official title of National Bee Culture headquarters as posted on the walls of the new office at Somerset, Md.

There have been other workers in the Bureau who have contributed greatly to our knowledge of bees. The work of Dr. D. B. Casteel on the methods of wax-scale manipulation and of pollen-gathering, that of Dr. Burton N. Gates on temperatures of the colony, and other such work on bee behavior are all valuable and all have a bearing on practical beekeeping.

It will be recalled that the expression ''bee behavior'' is one which is now common in beekeeping, and this is the result of the emphasis which the Bureau has placed on this work ever since Dr. Phillips has been at the head of the work. Bee behavior is the foundation on which all good beekeeping rests, and the Bureau is right is placing so much emphasis on it. Dr. Jas. A. Nelson's work on the development of the bee and R. E. Snodgrass' work on anatomy are both the products of this office.

In addition to the investigations and extension work, it is the policy of the office to make that branch of the Bureau a sort of storehouse for information on all beekeeping subjects. Several years ago Dr. Phillips told us thru Gleanings about the immense file of literature on beekeeping at the Bureau. This has been growing ever since it was begun and is today doubtless the best bibliography on beekeeping in the world. Papers and books are there listed with a record where they may be found if they are not in the library of the office. Dozens, perhaps hundreds, of papers in foreign languages have been translated and placed in the files for references, especially those bearing on the lines of investigation undertaken by the office. These, together with the library of the office, constitute the greatest compilation of beekeeping information in the world.

And now for an important point. All of this information and all of these records are in a frame building in the suburbs of Washington. I stated earlier that this building is convenient, but it has one most serious fault. The Government might be able to lease another building if this one should burn, or it might then build one fit for the preservation of the records after they are all destroyed. Why is this not done before it is too late? This is something which we should bring before Congress and keep before that body until the office which represents us at Washington is housed in a fireproof office and has all the equipment which it needs. It should by all means be in a building where the records are as safe as it is possible to make them. It would be a matter of personal loss to every intelligent beekeeper in the country and in the world, if the present office were destroyed by fire.

The extension work in beekeeping will be discussed in a later article. All of the work, that in Washington as well as the extension work, is paid for out of the appropriation of $35,000 made by Congress. During the war it was $50,000. When Dr. Phillips went to the Bureau of Entomology the annual appropriation for beekeeping was $8,000, and this has gradually been increased from year to year. It has not increased fast enough, however; for there should be more extension men in the field, more men in the Washington office for investigation work and for an enlargement of the work of the office along all lines. I say this, not because I wish to see the present beekeepers receive more aid from the Government than they are entitled to, but because beekeeping must grow.

It has been so small thing for beekeeping to have the growing office of the Bureau of Entomology striving to help it in every possible way, aiding beekeepers individually and collectively with their problems.

Convalescent soldier boys studying bee culture at Ft. McPherson, Ga. Many of the 30,000 still in Uncle Sam's 75 army hospitals have taken a keen interest in beekeeping.

FROM THE FIELD OF EXPERIENCE

THE OLD LESSON TAUGHT AGAIN

A Careless Shipper of Comb Honey Suffers the Usual Loss

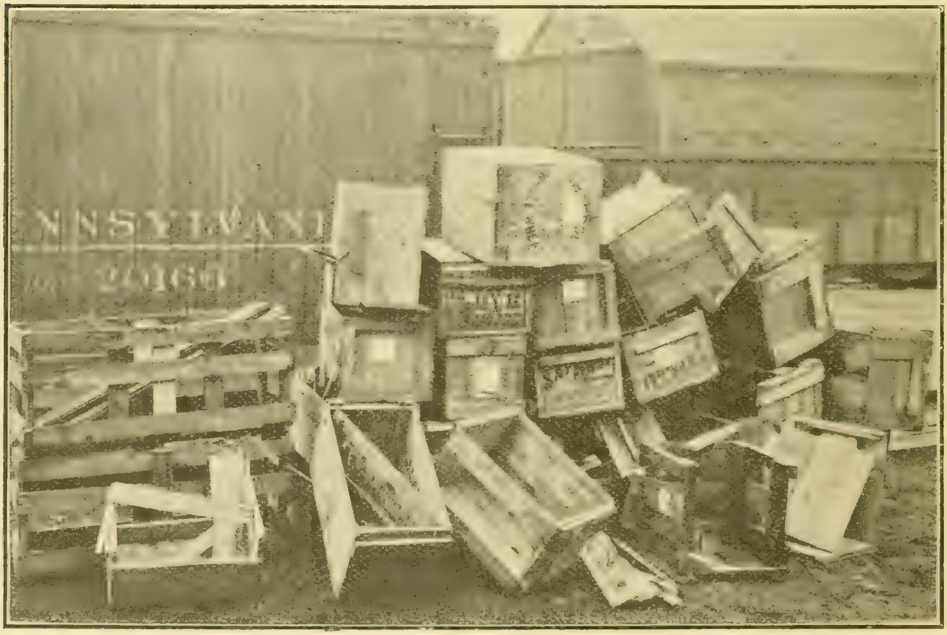
Some lessons have to be taught and retaught, repeated and re-repeated, in beekeeping as in every other industry. One of these is the caution as to packing honey for shipment—either comb or extracted. Constantly and everywhere the individual shipper is poorly packing his honey, with consequent loss to himself and detriment to the whole beekeeping industry.

It is the careless packer of honey who is today to blame for the high freight rates (and going higher) on all honey shipments. The careless, thoughtless honey-shipper makes the whole honey industry suffer by his perverseness.

A shipment of comb honey received a few days ago by the Airline Honey department of The A. I. Root Company at Medina was so badly damaged because of gross carelessness in preparing it for shipment, that we want to let it, with the aid of our camera, serve as still another warning against carelessness in shipping the beekeepers' product.

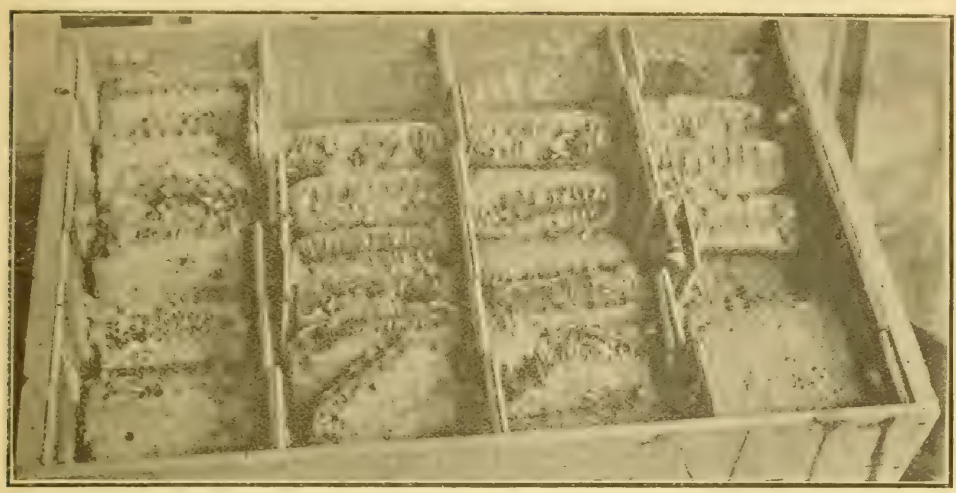
This honey came from a point in New York State, not far from Buffalo—a distance of about 200 miles from Medina. The quality was excellent, bringing a good round price. Yet when the producer of this fine honey came to ship it, he put the comb-honey cases into any sort of old boxes (as will be seen in the accompanying illustration),

Some of the broken and drained comb honey ready to be melted up.



Here are the boxes in which the ill-fated comb-honey shipment was made. There was no packing placed inside any of these boxes to protect the frail honey shipping cases.

FROM THE FIELD OF EXPERIENCE



How the comb honey was broken out of the sections and ruined in this careless shipment.

without packing the cases in such boxes in any way. The comb honey was allowed to shuck about and fall and tumble around in these boxes while coming a distance of 200 miles by local freight shipment. There was not a mark on a single box to warn the freight-handlers to be careful as the contents was fragile, altho as a local shipment this honey had to be transferred from one car to another several times.

When it reached its destination this fine comb honey was a mess to behold, and a worse mess to clean up. In all there were 102 cases of this honey. Thirty-six of these cases were so smashed that the honey had to be melted up; the honey in 32 more of these cases was broken out of the sections and sold as damaged honey to local retail merchants; the remaining 34 cases of honey, while not broken out of the frames, were disposed of as "damaged goods." The loss to the beekeeper was one-third the price of his honey, and the purchaser was at all the trouble of cleaning up the mess without a dollar's profit in the transaction—all because of carelessness in shipping.

Had the shipper taken the little pains necessary to have packed the honey cases even in these old boxes in straw—top, bottom, and sides—probably none of it would have been damaged. He also should have plainly marked the boxes: "Fragile. Comb Honey. Handle this side up with care."

Many shippers of comb honey evidently do not know the requirements for shipping their product as laid down in the rules of the U. S. Consolidated Freight Classification. These official directions for preparing comb honey in sections for shipment are word for word as follows:

"Comb honey in section frames, in wooden boxes, with or without glass fronts, two or more enclosed in wooden boxes only or in crates, must be protected by a pad of hay, straw, excelsior, or similar material, not less than 4 inches thick in the bottom of the box or crate, and the package plainly marked on top "Fragile—this side up."

Editor Gleanings.

* * *

DO DRONES HELP INCUBATE?

They Find Friends in Mell Pritchard and the Editor of the Bee World

One of the enjoyable moments of the beeman's life is when he finds some one of world-wide repute expressing an opinion which exactly coincides with his own idea—especially when such able authorities as E. R. Root, Iona Fowls, and Dr. E. F. Phillips accuse him of being something very like bone-headed for entertaining such an idea.

It was my good fortune to find such an article in the September issue of the Bee World from the pen of its able editor, A. Z. Abushady, under the heading, "Our Parting Friend." I am herewith submitting this article, with the request that it be published in Gleanings, so that the aforesaid Fowls, Phillips, and Root may take notice.

Mell Pritchard.

[The following is the article that Mr. Pritchard requests to be printed.—Editor.]

OUR PARTING FRIEND.

Our humble friend, the drone, is due to part this month, if he has not already parted, even from the largest modern apiary in Europe where queenlessness is not overlooked. He is usually the subject of abuse. Very few indeed appreciate his domestic and racial role.

An observatory hive will clearly show you the drones clustering over the brood. There is more

FROM THE FIELD OF EXPERIENCE

weight in the suggestion that they help in brood incubation than in contending that they benefit by the animal heat of the brood. The drone is a big fellow, and one who carefully looks after his meals. Altho an example of idleness, his metabolic heat cannot be insignificant, and it is peculiar that he often chooses the brood area for clustering.

In criticising a comment by John Anderson, a leading contemporary remarked that so far as heat production is concerned, the drone is valueless, since coincidently the time when he is destined to exist at least with all ordinary strains of hive bees is just the time when the hive heat is excessive. This remark is hardly correct from a modern apiarist who has pride in the general control of a colony in a modern hive, provided the latter is a model of perfection and not of cheap accommodation. Under favorable circumstances, the regulation of the temperature of the hive should not be left mainly to the bees, as they have undesirable ways of their own when their patience is lost in counteracting the atmospheric heat by their method of ventilation. Such artificial ventilating devices as met with in the "J. G. D. Ventilator" (which can be fitted to the floor board of any hive), the "Insulator Hive," the "Hygienic Hive," and Baldwin's "New Pattern Hive," are amongst the modern means for helping the apiarist to become a bee-master and not merely a keeper of bees.

It is no exaggeration remarking that with intelligent management the drones may be rendered to contribute in whatever small degree to the *incubation* of the brood whilst the workers' attention would be diverted to more important work for the time being. They need not desert a super in a cold night for instance, however the number of the deserting bees may be small. Yet, the number of drones in a populous hive is comparatively trivial, and the subject is not worth a lengthy discussion, but our point is to emphasize that the drone has a *domestic function* as well as a *racial* one. As to whether the question is worth at all any practical application, especially to the busy apiarist, is a different matter.

Regarding the second and most important function of the drone, C. P. Jarman tells us: "The results of breeding by selection are too evident thruout the domestic animal world to need emphasis, and experience has shown that the male has a greater influence than the female on the progeny. There is no reason for assuming that bees differ in this respect; for the fact that drones have a grandfather, but no father, does not affect the established principle. The system of breeding our young queens from the best queen mother is a consequence of our incomplete control in mating. Given an absolutely isolated apiary, the conditions above suggested should be reversed and the best queen used as the drone-rearer."

HOW LONG CAN THEY LIVE?

Remarkable Case of Bees Surviving in a Hive Closed for Seven Months

Some time during the latter part of last July, I found a strong colony of bees in one of my out-apiaries with a few cells of foul brood (American). As some years of experience with foul brood has convinced me that it does not pay to temporize with it, I shook the bees and, shutting the old hive up tight, hauled it home and put it in the basement of our house, a place where I keep such things until I am ready to make the combs into wax.

This basement is a tight room, perfectly dry, containing the furnace that heats the house, and is kept warm at a comparatively even temperature of about 60 degrees at all times.

Now this hive of brood, taken from a strong colony in the height of the season, undoubtedly contained much brood that hatched into bees after the hive was shut up. I frequently heard these bees humming in the hive, but did not do anything to it until February 26, when I was ready to make the combs into wax. When I opened the hive, I found to my astonishment that there was quite a bunch of live bees in it. As a few bees were flying outdoors, I set them out and kept close watch, but only two or three bees left the hive; so I returned them to the basement until March 1, when I set them out again and examined them. The bees were perfectly normal in appearance, with abdomens not greatly distended. There had been some spotting of the combs, tho not nearly so much as we frequently see in colonies that come thru all right.

To sum this up: a small colony of bees, that had never had a flight, had been confined to their hive in a dry, warm, and moderately well-lighted room for at least seven months and were in good condition.

Perhaps some of you who winter your bees in cellars may be able to get something out of this. I can see some possibilities, and, just as a matter of experiment, I may try it again with something more nearly approaching a normal colony of bees.

Grand Junction, Colo. J. A. Green.

A DRONE'S GRANDMOTHER

Thinks Dr. Miller Has Told Only Part of Truth

Last June, page 369 of Gleanings, Dr. Miller got me started and I have been dreaming about my mother and grandmothers ever since.

Last year I bought queens from nine different breeders and my average yield from the different strains ran from 150 pounds to 44 pounds. The apparent loss from not having all of them best would buy six new queens for each hive or amount to $200.00 in cash.

I had everything all planned to raise drones even to saving 20 drawn drone-combs, when the doctor upset everything by saying a drone has no father and inherits all his good or bad qualities from his grandmother. Then in big, heavy type he says, "Don't do anything about the drones."

Confession is good for the soul and the doctor confesses that he is only a recent convert to the truth, and what I want to do is to prove that he has only a part of the truth. I hope to prove that to let the drones take care of themselves is a fallacy. Suppose numbers 1, 2, 3, 4, and 5 represent hives that give 100, 50, 0, 150, and 200 pounds respectively, and that we raise a queen from each, numbering the new hives 101, 102, 103, 104, 105 and that they give 200, 150, 100, 50, and 0 pounds respectively. Now we have five families of mothers and five of grandmothers. To make matters more simple we dispose of hives 1, 2, 3, 4, and 5, but we will speak of breeding from 1, 2, 3, 4, and 5 when using drones from 101, 102, and 103, etc., because the former hives contain the grandmothers of the drones we use. The best hive we have is hive 101, with 200 pounds surplus; so we breed from it and take the doctor's advice and don't do anything about drones. Accordingly, if honey-gathering qualities are transmitted as readily by the drones as by the queen we would get, the following season, these results: grandsons from hives 1, 2, 3, 4, and 5, five mothers from hive 101—result 150, 125, 100, 175, 200 pounds respectively or an average of 150 pounds of honey.

Now let us breed my way. We will use queens from hive 101 and prevent all drones flying excepting from hive 105, which gave no honey, but whose mother (the future grandmother) was at the head of a colony that gave 200 pounds, Then we have all queens whose colonies give 200 pounds, a gain of 250 pounds of honey in our five new colonies or a gain of 33 per cent over the **do-nothing way.** I hope the Doctor sees the truth of the above figures and will confess again.

I presume that the next time the Doctor will upset us all by dragging the drone's grandfather into the argument. I was glad he did not do it this time or I would have given up in despair.

In the above calculation (in order to simplify matters) I have left out the idea that some queens, as well as drones, will be better and some worse in spite of parentage.

When the Doctor says, ''and please keep in mind that with the way I advise the poorest queen in the apiary will have just as good drones as the best,'' he gives parentage all the credit and entirely overlooks environments and everything else that may improve or deteriorate the progeny; such as cell-starters, cell-finishing colonies, and a dozen other circumstances, either premeditated by the queen-breeder or purely accidental, that would make not only the queens vary in quality but also the drones, while it would be just as impossible to have the drones all of the same quality as it is to raise queens of all the same quality.

Hammonton, N. J. C. E. Fowler.

THE HONEY CAKES OF ITALY

How Daintily They Are Made and How Quickly They Are Sold

In no country is honey more used by the people than in Italy, where its wonderful qualities, medicinal and nutritive, are fully recognized. In Italy there are several very fine honeys; but the coarser kinds are in great abundance. There is one kind in particular, gathered in the Apennines, of which much use is made by the Italian populace. With it they make their most delicious and fragrant honey cakes, which may be bought from the street vendors hot from the griddle-like frying pan. There is nothing more dainty, altho this honey, produced by the bees from the fir, pine, birch, and other trees, is disagreeably dark, rank, and strong.

In particular does one find these honey-cake vendors in Naples and other cities of southern Italy. Humorous, good-natured, either singing while at work or uttering jibes and jests to the invariable crowd of lazzaroni by whom he is surrounded, waiting for the delicate ''regale,'' the honey-cake maker is a great favorite. Before him stands a table which he keeps scrupulously clean. At one side of the table is an upright, from which (and at right angles with it) projects a piece of iron in the form of that instrument called by laundresses an Italian-iron. At the opposite side of the table is a small earthernware furnace or pot filled with lighted charcoal. From a nail at the side of the table hangs a frying pan with a short handle—that kind known to us as a ''saute-pan.''

Having placed on the table a small quantity of polenta, which is the very fine meal of the maize or Indian corn, he pours in a quantity of the black honey and works the whole into a paste with a pair of wooden instruments, and does not touch the mass at all with his hands.

When the dough is stiff enough he further works it with a rolling-pin, rolling it this way and that until at last he has it in the shape of a gigantic German sausage. Taking this in both of his hands he beats it against his Italian-iron till it is perfectly white. Now he rolls it out till it is no thicker than a dollar; then with a tin mold of fantastic form he divides it into small symmetrical pieces. Meantime he has placed upon the furnace his saute-pan, charged with sufficient virgin olive oil to fill it half full. The moment the oil begins to boil he throws in his little bits of paste, and fries them until they are a light brown.

They are now ready, and very soon disposed of, to be eaten hot. No sooner is his paste exhausted than he begins another batch, for the honey-cake maker, especially in the large towns, has always customers waiting.

The average tourist who has the curiosity to taste this dainty usually finds it so much to his liking that, as long as the honey cakes are procurable, a plateful is bought every day for his own particular use.

Oddly enough, too, in the Island of Bourbon, a dependency of the French Republic, in the Indian Ocean, the folks, both white and colored, use in somewhat similar cakes a most delicious and fragrant honey from the wild bee. The hue of this honey is a light green, and from the heat of the climate it is so liquid that it is always kept in black wine-bottles. The Bourbonese work crushed bananas into the dough, with a most pleasing result. A. Tegnier.

Rayleigh, Essex, England.

BEES IN THE OKANAGAN VALLEY

A Fruit and Vegetable Country Where Bees Are a Necessity

The Okanagan Valley, B. C., extends from the border line at Oroville on the south to Salmon Arm on the north, but in this article reference is made chiefly to that part of the valley lying between Penticton and Vernon, B. C., and adjoining Okanagan Lake.

The population of this area is probably about 20,000, most of whom are fruit-farmers, with a fair proportion of vegetable-growers at the northern end. The chief products of the valley comprise apples, pears, peaches, plums, apricots, cherries, grapes, melons, tomatoes, celery, and onions. The average rainfall being but 12 inches in the year, irrigation is general except in the extreme north.

More than $4,000,000 was received by Okanagan growers last year, from which it may be inferred that there is considerable fruit bloom to be pollinated by our friend the bee. Unfortunately, the profusion of fruit blossoms in the spring is largely offset by comparative scarcity of wild blossoms, and during the latter part of the summer in many districts there is a meager supply of nectar. Alfalfa is very generally grown as a cover crop in the orchards, and where this is left to blossom the problem is solved; but, in most cases, it is cut for feed and the bees get but little from it. There is, however, a fair sprinkling of white Dutch clover in many parts, and some areas have a great deal of sweet clover as a roadside crop. Where there is any seepage from the irrigation flumes this plant flourishes in abundance and is constantly covered with bees. A good deal of sage also grows here and helps out considerably.

One of the largest apiaries in the valley is that of L. J. Harris, who is the Provincial bee-inspector for this district. Mr. Harris operates for both comb honey and extracted, and, I understand, supplies the C. P. R. with a good deal of the former in small "individual" cartons for use in their dining cars.

At Kelowna, further south, the most extensive bee business is run by D. E. McDonald, whose apiaries are at Rutland and Ellison, both a few miles inland.

D. B. Lyons, also of Kelowna, keeps quite a large number of colonies of Italians as aids to his main business, which is the growing of cucumbers, grapes, and tomato plants under glass.

A little further up the lake is Okanagan

A typical British Columbia apiary, that of F. R. Gartell at Summerland, B. C.

Centre, the home of at least one bee enthusiast in the person of N. H. Caesar, an old timer in the valley and a beekeeper for the love of the business. Mr. Caesar believes in sweet clover, and always has part of his land planted to that crop.

Further south we come to Summerland, where there are quite a number of beekeepers. The accompanying photo is of F. C. Gartrell's bees, located at Trout Creek Point close to the Dominion Experiment Farm. I consider this district one of the best bee locations in the Okanagan Valley. Mr. Gartrell averaged 100 pounds of extracted honey per colony last season, and all reports obtained by me were good.

Penticton, at the foot of the lake, does not seem to have as many apiarists as most of the other districts in the valley, altho I heard of some very good yields. The accompanying photo shows some of Alfred Jones' hives on his ranch above the lake. He has a fine location and, I believe, has done well this season.

Naramata, "The Smile of Manitou," lying opposite Summerland, has until recently overlooked the bee industry, but has gained several new recruits this year. I have recently instituted a series of small bee-houses placed on certain of the fruit ranches and operated by me on profit-sharing terms. The reason of the arrangement is that while most of the local fruit-growers realize the benefit of bees to their orchards and are perfectly willing to install them, they are, in many cases, unable to devote the necessary time and attention to them. The houses I am installing will each accommodate nine 12-frame colonies, all on one level, and the cost works out at a little less than the same number of hives with the necessary winter cases. I am a firm believer in the bee-house system, and have this season built one to accommodate 16 colonies. I also much prefer a 12-frame colony with 8-frame supers, as recently described in "Gleanings."

Beekeeping and orcharding are practiced together in British Columbia.

George Weaver.

Naramata, Okanagan Valley, B. C.

LIQUEFYING HONEY

Top of Furnace a Fine Place to Accomplish This Work

In Gleanings last winter, Mr. Byer spoke of liquefying honey on top of the furnace. I have had a little experience that way and consider the top of a furnace the ideal place to liquefy honey. We burn natural gas for fuel and can regulate the heat to a degree. On top of the furnace there is three or four inches of lake sand and by laying the cans on their sides and covering with a hive cover to help retain the heat I found it a very satisfactory and safe way of liquefying. I think I got quicker results by emptying the honey into 10-pound pails as soon as it would pour from the large cans, and then setting the pails on top of the furnace to finish liquefying.

In the fall of 1917 I ran my honey from the settling tank directly into 10-pound pails and have had to liquefy nearly two tons of it, but it is quite safely and easily done if not too much heat is used. I think about 24 hours is the time required for 10-pound pails with some hive covers over the top of them. I have frequently had 150 pounds or more on at one time in pails and cans; but I did not care to have more than this amount liquefying at one time, for fear it might injure the honey if kept in a lukewarm condition too long.

Late this fall I found the top of the furnace also a very good place on which to warm up some extracting supers of honey. Another way to warm up cold combs of honey for extracting is to put two barrels or boxes just far enough apart and set a pile of supers on, with a lighted lamp underneath the supers and a cover on top of the pile. The heat should be carefully watched, tho, or the combs may melt. J. E. Battram.

Kingsville, Ont.

EXTRACTING IN HAITI

A Great Chance for Improvement in Haitian Methods

It may be of interest to compare the methods of work used in Haiti by native Negro beekeepers with the best of modern methods and to consider our problem of adapting our best American methods to the conditions under which we work in this island. Perhaps a description of an extracting at one of the apiaries which we have recently taken over will give you a fairly good idea of conditions.

The preparations for extracting were made during several days prior to the night of the great event, by taking off and storing in the honey-house all the combs to be extracted, some of them containing sealed brood which had been above an excluder,

FROM THE FIELD OF EXPERIENCE

excluders being commonly used. This honey-house is of wattles daubed with mud and has solid doors and no windows, thatch roof, is not screened and is not bee-tight These various items make it advisable to extract at night.

When all was ready the beekeepers from near-by apiaries to the number of a half-dozen came in to assist, and along with them a dozen or more volunteers to help from the fun of it, or for the honey they could eat or steal. The proprietor had to be there also from start to finish, for there was not one who could be trusted not to carry away honey if there was an opportunity, and attempts are made under his very eyes. An apiary cannot be left alone, but someone must always be there to prevent frames, honey, or whole hives from being carried off.

A moonlight night was chosen so barrels could be filled outdoors and combs could be put on the hives readily after they had been emptied. As soon as the bees had ceased flying, work began. One man took frames out of supers and brushed off the few remaining bees, handing the frame to another who handed it to one of the two uncappers who were seated, one on each side of the uncapping-tub. From the uncappers the frames were passed to a man who piled them in another tub from which they were taken by another workman and passed up to the man at the extractor. The extractor was placed on a shaky platform about three feet high —high enough so that a funnel and barrel could be put under the extractor gate. At least two men on this platform managed the extractor and removed the empty combs, passing them to a man who handed them to another who passed them out the door to another who handed them to another who placed them in the empty supers. Another man, no, two men, distributed these supers thru the apiary while the beekeeper, with a helper, set the supers on the hives without much regard as to whether the frames were spaced, or whether or not the brood-chamber was full, as many frames had been removed from the brood-chamber for extracting. In a week or so after the bees had quieted down from the cleaning up of combs and house and the robbing which ensued during the next few days, the beekeeper would space combs and put things to rights.

When the first barrel was full and running over, the man who was watching the funnel took it out of the barrel with the stream of honey running out of the funnel, and attempted to put it up on the edge of the extractor to let it drain. The neck of the funnel came into contact with the revolving reel, knocking off the neck of the funnel and breaking an extractor basket screen. Fortunately a supply of screens was on hand for such accidents, as was also an extra set of gear wheels, and the extractor was soon running again. Honey was spilled all over the place, tho there was enough dripping around before that, and the barrel had to be moved outside the house, too many men being inside. Then the funnel had to be repaired as best they could. The neck was stuck into its place, well wrapped with rags, and then placed into the bung of the barrel. Of course the joint leaked sadly and honey ran out all over the barrel. Then, they insisted on filling every barrel to overflowing, after which the outside of the barrel was wiped by someone's hand, and put back in the tin or into somebody's mouth. Now, much more could be mentioned in this connection, but perhaps it would be as well to leave it to the imagination.

It is easily seen that with so many men working in the extracting-house, passing combs here and there, and being continually in each other's way that not very efficient work was done. There were some advantages, however, in doing the work after night, when it was somewhat cooler than during the day and the doors could be open, for that small room was oppressively full of sweating negroes, and some ventilation was desirable, to say the least. There were 13 men in that room at one time, all working.

Such is honey-extracting according to Haitian methods, and you may guess that the next extracting will not be done in quite the same manner. I wanted to see one extracting in their own way just to see what I was up against. I saw. I am glad to say that beekeeping in some parts of the Dominican Republic is rather better than in Haiti. E. L. Sechrist.

BEES SHIPPED in POUND PACKAGES

Need Air and Ventilation Even More than They Need Water

Articles that have appeared in Gleanings in regard to shipments of bees in pound packages and the need of supplying the bees with water **en route**, are of great interest to any one who contemplates either buying or shipping bees by the pound.

I have in the past bought bees in this way; and, as my office is near that of the express company, I have been called in a great number of times to advise how to treat the bees received in bad condition. In case the bees had water-bottles in the packages, the hole in the bottle was sometimes stopped up; and, of those I bought, fully 25 per cent arrived in bad condition. I have received bees in pound packages that had only candy feed—no water container—shipped from the same distance (California) that came thru in better condition than those having water. In fact, some of these pound packages having only candy came thru in what I would call

FROM THE FIELD OF EXPERIENCE

perfect condition, there not being over a dozen dead bees in a two-pound package.

In those packages that showed many dead bees I found that if they were at once sprinkled with water, it tended to revive the bees; but so far as their being of any future use was concerned they were practically worthless.

In one case a shipment was by mistake addressed to our neighboring village of Seattle, and held there for about 10 days before being sent to Tacoma. On arrival the bees appeared to be about all dead; but I watered them at once with a sugar syrup, and an hour later when I dumped out the package, fully one-fourth of the bees were alive and able to fly and enter the hive in front of which I placed them. However, three days later they had dwindled to the vanishing-point.

My conclusion is that the bees do not need water as much as they need more air and ventilation in transit, and that the shipping cages as at present constructed are not properly made. The ends being in the shape of a rectangle, it is possible for the cages to be so placed in the express car that the bees are smothered, either by being placed against the wall of the car or by having other packages piled so close to them as to shut off the air from the bees. In some cases the express messenger has even placed the bees alongside of the steam or heating pipes in the car to keep them warm. It is possible that a six or eight-sided cage might be an improvement.

Another thing that should be impressed on the buyers is that it is a very risky proposition to buy pound packages unless the purchaser has some brood to give the bees upon arrival.

My experience has been that, even when queens start to lay two days after arrival, as is often the case, by the time the brood is ready to hatch, the bees have so diminished in numbers as to be unable to take care of the brood which therefore chills and dies, and the bees soon dwindle out. In the future I shall see that I have some brood to give the bees upon arrival, and also, if possible, a week later.

Tacoma, Wash. T. Dwight Whitman.

This apiary of Geo. H. Rea at Reynoldsville, Pa., is in a 30 foot clearing in heavy timbers. The bees' flight is up and over the tree tops.

SIFTINGS

J. E. Crane

THE directions for feeding bees in winter, given on page 770 of December Gleaning, are very much to the point and very valuable. However, I looked in vain to see if candy suitable for feeding bees in winter could be made from a good grade of brown sugar. It has been difficult for some beekeepers to get any other kind this year.

* * *

If there are any beekeepers in New England in need of sugar for bees, they should apply for certificates at once to E. S. Brigham at Montpelier, Vt., and then send to the Montpelier Grocery Company, enclosing the certificate.

* * *

"Why do labels and advertisements continue to use the hackneyed expression, 'Pure Honey?' " asks C. M. Elfer, page 797. Well, I expect it is because we have got into the habit of it and haven't stopped. We are sometimes told that we can't make a man honest by law; yet it was but a few years ago that enormous quantities of impure honey were placed on the markets, while today such a thing is unheard of.

* * *

F. Eric Millen says, page 778, that there are quite too many kinds of honey on the market. He would have the honey graded so that all of it from one state or province would be uniform. There is such a constant variation in honey from different sources that this would seem impractical. Clover honey is still clover whether it comes from Vermont or Ohio, and the same with buckwheat; but, if we blend Ohio buckwheat and clover, who would care to buy it?

* * *

J. L. Byer calls attention on page 795 to alsike clover as one of the most valuable of honey plants. I believe he is right. Where it is grown freely, the number of colonies that can be kept in one location is surprising. From where I live a line running nearly west for six miles would include four large yards of bees of some six hundred colonies. To the east, north, and south are other large yards, and yet all seem to do well. This would give some 12 or 15 colonies to the square mile.

* * *

On page 770 the Editor speaks of the use of nullomoline in making candy for feed for bees in winter. Will he tell us what it is made from, how or where it can be obtained, and at what price? [Nullomoline is a trade name for invert sugar syrup, having many of the characteristics of honey. It is prepared and sold by the Nullomoline Company of New York City, and usually costs from one to two cents above the market price for granulated sugar. We have used it for making queen-cage candy in preference to honey as the latter may or may not contain bee disease. Nullomoline will answer for making bee-candy when the bees are not on the road over 48 hours. After that the candy is liable to harden so that the bees starve to death. When honey is boiled for making queen-cage candy it nearly ruins it for the purpose.

* * *

Those 21 illustrations commencing on page 771 are well worth the careful attention of every young beekeeper, for they are true to life and human nature. Selling is one of the great games of life, whether we enjoy it or not; and the one who knows exactly the market value of goods holds the trump card. To know what the buyer thinks is often of much more value to the seller than what the buyer says, and to be able to know is an art well worth cultivating. I used to wonder how those reporting market prices could tell within a cent or a half-cent what certain produce was worth, but after visiting city markets and watching wholesale and retail merchants barter with each other I soon learned how it came about. I am not sure but it would well repay any young man who has much trading to do, to visit some of our larger city markets and watch the game as it is played by those who know how. Not that I would have any one learn how to get the better of his neighbor, but rather that he should be able to prevent his neighbor from deceiving him.

* * *

There are some pretty good things in that story, "Anne Lester and Daddy Lowe, Beekeepers." (See page 779.) The following will bear repeating: Anne says, "I beg to announce that some day I am going to write a book about beginning with bees and every other sentence is going to say that the people who won't knuckle down to read and study"—"Deserve to be stung," finished Jack. "Be comforted, they quite likely will be." Again, Anne says, speaking of Daddy Lowe: "He keeps me busy admiring him. Why, this fall as soon as the bees were ready for winter, he started planning for next season. So much increase, so much foundation, so much this and that—a few new covers, and so on. Then he took a careful inventory. Counted up everything he had and ordered everything he didn't have." Jack replies, "No early spring ever yet sneaked in on Dad and found him hollering for supplies."

If all beekeepers were to follow Daddy Lowe's methods, how it would make the supply manufacturers and dealers hustle thru the winter!

OUR FOOD PAGE

Stancy Puerden

IN these days of industrial unrest, insidious Bolshevism, daylight holdups and murders, low salaries and high wages, and a shortage of nearly all necessities combined with incredibly high prices, it is not strange that the spirit of hospitality has suffered. Stories of colonial days or of the old South, when nearly every family kept open house and the chance guest was welcome to remain as long as he pleased, are delightful; but I have no desire to go back to just that sort of hospitality, for the friends we most enjoy entertaining are not apt to be the ones who arrive unexpectedly and remain indefinitely.

But I deplore the fact that on account of the shortage of household help and high prices of food most of us are unable to entertain each other as often as we could wish. When I say entertain I do not allude to formal parties. I know just one woman who says she enjoys receptions, and as for the men, there never was one who regarded with anything but horror the prospect of shaking hands with a receiving line, and later standing with a row of other unfortunates, holding a cup and plate containing a tiny sandwich or cake, balancing wearily from one fallen arch to the other with his face set in a sickly smile. Between you and me, the only drawback to being the mother of two fine boys is the prospect that some time, when they are old enough to marry, I may have to give something like a reception for their wives.

The kind of a party favored by men includes a good, square meal, served at the regular time for a meal, with a good time afterward. After such an evening, unless one is hopelessly dyspeptic, he can go home and sleep the sleep of the just, untroubled by the wakefulness or nightmare that is apt to follow "light refreshments" served at the close of the evening. But, someone objects, there is no way of entertaining your friends that entails more work than a dinner party, and one can entertain so few at a time that way. That is quite true, and it is why I am going to talk about

Picnic Suppers.

I don't mean the picnic meal eaten out of doors, the kind that was always understood by that term when we were children, but the modern co-operative meal which gives us a chance to meet our friends often with a minimum amount of work for each housekeeper instead of a maximum for one. A visitor in our town once said she would always remember it as "the town of the Picnic Supper." Not that picnic suppers are confined to Medina, but, like dandelions, they surely do flourish here. Scarcely a week passes that I am not called up and requested to come to a picnic supper, accompanied by my husband and some food, the latter probably even more desired by the committee than the former. Church organizations, clubs, lodges, King's Daughters' circles, neighborhood gatherings, and family parties are fed by picnic suppers.

Ever since I have been a housekeeper I have belonged to a little social club composed mainly of old schoolmates. The members meet one evening a week with their work for a couple of hours, at the various homes in turn, no refreshments being served. About once a month we have a party and invite our husbands. The first few years a committee of four was appointed for each party, to act as hostesses and furnish all the refreshments. In time these parties became somewhat of a burden to the four on the committee. Finally one bright member suggested the picnic supper. We never went back to the old laborious method of entertaining the club, and having successfully held these picnic suppers for so many years, we have a very good working system.

A committee of three, appointed for the season, plans the menus and notifies each member what she is to take. This work is done as far as possible at the previous club meeting, to save telephoning. It is understood that each member is to bring one dish, such as fried chicken, scalloped potatoes, a salad or cake, and six sandwiches. The sandwiches insure there being enough bread and are easier to serve than bread and butter or rolls. For the first year or two the committee did not designate what each member should bring, aside from the sandwiches, thinking that in a club of 20 chance would bring it about right. But after one party where 90 per cent of the members were moved to take potato salad, the committee planned just how much of each article on the menu was needed and assigned it accordingly. If a member finds at the last minute that she is unable to attend, it is understood that she will furnish what she agreed to, unless she gives the committee 24 hours' notice.

In addition to the food each member packs in her basket plates, cups, silverware, sherbet glasses or dessert plates, and napkins for herself and husband. The hostess furnishes hot coffee, cream, and sugar and provides tables, lunch cloths, and chairs for the crowd, which is usually about 36 out of a possible 40 each time. Each member, as she arrives with her husband, unpacks her basket, arranges the food she has brought in the kitchen, and places her dishes and silverware on one of the tables. Usually two or three members assist the hostess in serving, and after the meal is over each member gathers her soiled dishes and napkins and repacks them in her basket to be taken home and washed. By this means most of the dishwashing in the home of the hostess is eliminated, and the few extra dishes in the various homes can be washed along with the breakfast dishes the next morning. Thus there is no dreaded ''day after'' for the hostess. Also carrying our own dishes, napkins, and silver obviates the necessity of borrowing on the part of the hostess, for few housekeepers own enough equipment to serve 30 or 40 people.

It is understood that any leftovers will be taken home in the basket of the one who furnished the dish.

Before we adopted the six-sandwich plan it was difficult for the one who furnished the sandwiches to prepare just enough. Now we always have enough and seldom any amount left over.

Some of us who are members of large families have adopted a modified form of this plan for our holiday gatherings, thus making it possible for the hostess to enjoy a holiday instead of regarding it as the hardest day of the year. Also it is very pleasant for two friendly families, with children of approximately the same ages, occasionally to combine a meal. Working together varies the monotony for the two mothers, and it is always a festive occasion for the children, even if the food is nothing out of the ordinary.

BELOW I am suggesting several menus for picnic suppers, followed by a few choice recipes. Scalloped dishes are always popular for such occasions, as they are easy to serve and may be kept hot on the way by covering them and wrapping closely in several thicknesses of newspaper before putting in the basket. The scalloped chicken is especially good for a cold night, and while it may not be quite so good as a choice piece of fried chicken a generous helping of scalloped chicken is infinitely preferable to fried neck or wing. The chicken and potato scallop is also a good way to serve chicken for a crowd. A moderate-sized chicken scalloped either way will serve 10 people generously.

The so-called Italian Chop Suey, while unlike the Chinese dish of that name, is generally liked. The recipe given will serve 12 people. To be at its best round steak should be purchased for it and ground at home, as Hamburg steak in the average market is about as well flavored as sawdust.

I am giving my two favorite sherbet recipes. The orange sherbet, being made with milk, is richer and more like ice cream, especially if a little cream is added. The raspberry sherbet is very attractive in both color and flavor, especially if made with red raspberries.

PICNIC SUPPER MENUS.

Scalloped chicken
Scalloped potatoes
Cold slaw
Sandwiches
Jelly
Olives, Pickles
Cake
Raspberry sherbet
Coffee

Baked ham with Chili sauce
Creamed potatoes in casserole
Buttered peas (canned)
Sandwiches
Mixed fruit salad
Olives
Pumpkin pie
Cheese

Chicken and potato scallop
Scalloped corn
Waldorf salad (nuts, celery, and apples)
Sandwiches
Pickles
Cake
Orange sherbet

SCALLOPED CHICKEN.

Chicken or fowl
Toast
Bread crumbs
Chicken gravy
Pepper
Salt

Stew the chicken until tender in enough water to cover, remove from the broth, and thicken the latter with flour stirred smooth with water. The gravy should be rather thin. Remove the meat from the bones and cut in small pieces. Oil a glass or earthenware baker, put in a layer of toast broken small, then a layer of chicken, and repeat until all the chicken is used, sprinkling the top with crumbs dotted with drippings or butter substitute. Pour enough chicken gravy over to moisten all the toast and bake about 40 minutes, or until well heated thru. Cooked veal or even pork may be used along with the chicken. Season to taste.

CHICKEN AND POTATO SCALLOP

Chicken or fowl
Boiled potatoes
Bread crumbs
Chicken gravy
Minced onion
Salt and pepper

Prepare the chicken as in the preceding recipe. Boil the potatoes with the skins on, peeling and dicing when done. In an oiled baker put a layer of the diced potatoes, sprinkle lightly with salt and a very little pepper, add a little minced onion and then a layer of chicken. Repeat until all the chicken has been used, cover with crumbs, dot with drippings or butter substitute, and pour over thin chicken gravy to moisten. Bake about 40 minutes. Almost any other left-over meat may be used in this way, and the onion may be omitted, if not liked.

ITALIAN CHOP SUEY.

1 pkg. spaghetti
1 lb. chopped beef
1 qt. can tomatoes
1 large onion
3 tablespoons fat
1 tablespoon sugar or honey
Pepper and salt

Cook the spaghetti in salted boiling water until tender, drain and add the tomatoes, seasoned with salt, pepper, and sugar. Cut the onion small and fry in the fat until light brown, add the chopped beef and fry until done, stirring to keep from burning. When done thru mix with the tomato and spaghetti, add more seasoning, if necessary,

(*Continued on page* 52.)

Beekeeping as a Side Line

Grace Allen

ANOTHER year! Right here, for us to take into our lives and use for our own best purposes. Another new wonderful year! Another sheet of paper to be written on. Another high adventure to start. Another port to sail from. Another hill to climb. Another trail to be followed, unblazed, no footprints on it. Call it what you will, make your own figure for it; it is here. It is here, whether we are glad or sorry, here to be met and lived and shaped into something as like our dream of a year as our hearts and our wills can shape it. Oh, let us make it into a thing of beauty and of power!

Everybody, you know, assumes that New Year's resolutions are entirely out of fashion. It is quite the proper thing to smile at the mere words, as at something utterly crude or futile or old-fashioned. It is very up-to the-minute to scorn all the simple old ways of trying to better our own habits or manners or speech, or the way we order our lives. Yet often there is a strangely inspiring power in the very thought of a new start; and we would do well, perhaps, to cling to the fine old custom of taking advantage of all the beginning-times of life. Indeed, I often feel that one of the best of all resolutions is the resolve to notice and claim and take full advantage of all these beginning-times of life—every dawning morning, as it brings its new, unguessed day; every new and vivid week, breaking like a blossom out of its Sunday; every fresh brave month; every great, wide, wonderful door to a New Year. On all these beginning-days, how wise that we tighten our girded armor and sharpen our spiritual weapons, to go out with new zeal against our old enemies the giants and the dragons and the little foxes that spoil the grapes, our ripening grapes of purpose and character. For after all, there isn't anything else worth while, if these things aren't done right.

Everybody has one pet sin—one especial weakness. Letting things come between me and what I mean to do—is mine. (Probably the Editor could have guessed it! But there are so many lovely things to come between.) Is confession good for the soul? Then let me bare this day of mine, accepting the reproaches of the successfully efficient, while I vow my new vows and prepare for my clean, fresh start.

You see, to be very good, I should have mailed this Sideline department yesterday. I did not. So this morning I cleared the decks early, uncovered my typewriter, and just then, behold, two babies came floating across the path of duty—one wee and soft, in protecting blankets, the other rosy-cheeked and romping and imperious. Of course I played with them (such a happy hour!) until their mothers carried them away. Then there was something I wanted to look up in “The Manual of Style,” issued by the University of Chicago Press. It required about three minutes, but you know pages have a way of turning in my fingers, and I couldn't lay it down. However, as it is really nearly as dry as dust, it didn't hold me long—probably not more than an hour. Then followed a little spree with Webster and a longer—much longer—one with a borrowed volume of “Atlantic Narratives.” Then a truant thought suddenly landed squarely inside an old Plato, long unopened, and there—the hours just passed over. And at the last I fairly shut my eyes, so as not to seem to notice how Plato, as he slipped back into his accustomed place, bowed, as it were, to Gilbert White on the right and Samuel Johnson on the left. I shut my itching fingers tight and pulled them away quickly, going promptly back to my desk. “But the day is practically gone,” I admitted sadly to the neglected typewriter, “and no Sideline yet. Yet at that,” with the customary self-defense of the guilty, “the things I have taken from it were something more than herbs and apples.” Herbs and apples! What was the rest of that? That ought to go into a January Sideline—it surely ought—for all sideliners to recall, when tempted to take from the fair days to come any gifts less beautiful than the best. So I picked up my Emerson and looked for “Days.” One glance down the Table of Contents showed that it was not in this volume. That should have sufficed. But the little foxes were in a most naughtily nibbling mood, and one inspired page after another held their reader till the shadows fell. Later, after the lights were on and the house was very still it flashed over me that “Days” was a poem instead of an essay, and this fragment was quickly located:

> “I * * * *
> Forgot my morning wishes, hastily
> Took a few herbs and apples, and the Day
> Turned and departed silent. I, too late,
> Under her solemn fillet saw the scorn.”

Oh, if there be any other procrastinating sideliner on the reading list of Gleanings, any other who forgets his morning wishes as the hooded, hypocrite Days pass by—looking so ordinary and simple when they are really so splendid and divine—do join me in the vow to take hereafter not herbs and apples merely, no, nor even food and drink for the spirit when the spirit has chosen to work and serve rather than to feast; so that when our Days depart, silent, we may see under the solemn fillets something other than scorn.

Surely we need not be ashamed to make one or two such honest, earnest New Year's resolutions. Perhaps we well may be ashamed if we fail to do so; for so we fail to claim the inspiration, the quickening power and the renewed and strengthening purpose that come with the New Year. For I care not a whit what those more worldly-wise may say; I know right well that all the mornings and all the first days or months and all the wonderful New Year's Days are the doors that God opens when He smiles and says, "Try again, child."

Then isn't there some little way in which, as beekeepers also, we can strike a higher mark in 1920 than we have ever struck before? Anyhow, let's aim at one; more thoro studying, instead of just superficial reading; careful weighing of things, instead of being swayed too easily by others; keener and more accurate observations; better methods, if we can find them; better and more faithful application of them, when discovered; prompt performance instead of procrastination. Let me repeat that. **Prompt performance instead of procrastination.** And so on, down the whole list of individual sins of omission and commission.

* * *

Prevented by illness during October of 1918 from examining our bees until early November, we found them heavy with stores and still, even so late, showing bits of brood in most hives. Again in 1919 we failed to get to the fall examination in October, partly because that month, usually a golden month of sunshine and dreams, had only six clear days to its credit, and most of the cloudy ones raining. Aster in full bloom, too. In early November, the little town yard, with its surrounding bitterweed bloom of late summer and early fall, had its few hives heavy and ready for winter. But out in the country, many were tragically light. We fed a little, equalized stores somewhat, united several, and, with careful watching, hope to get thru.

There was practically no brood anywhere. The one happy exception was that Ben Davis Golden queen we bought in October. She had brood in several combs.

* * *

Sometimes I wish people who are not beekeepers wouldn't ask me about my bees every time they see me. "Well, how're the bees?" begins to irk, when it becomes the almost stereotyped greeting of people who aren't the least bit interested in bees themselves. Do they ask doctors, I wonder, how the sick are, and preachers how the sinners are, and plumbers how the pipes are? Perhaps, tho, I have brought it on myself, by an over-enthusiasm at certain times, exploding bee-talk when the laws of polite society called for chit-chat about the high cost of living or the best, or worst, movie in town. After all, I'd as soon my friends would ask, "Well, how're the bees?" as "Well, what do you think of Theda's latest?" (Would you believe I have never seen her at all? Why bother to see things, when you don't like what the advertisers write to get you there?)

* * *

What is a "filter cloth," Mr. Weybright (page 733)? I'd have thought they were cloths that some liquid filtered thru, but since you speak of them as "practically rain-proof," they're evidently not that.

* * *

Answering an inquiry; the lines in this department in October (from which the quotation marks got lost), beginning "All these put their trust in their hands," and closing "And in the handiwork of their craft is their prayer," are in the 38th chapter of Ecclesiasticus.

* * *

It seems to me recently more producers have been troubled with fermentation than usual, or else there has just been more comment on it. When extracted honey ferments, it is supposed to be because it was taken off before being thoroly ripened. But when one man is very particular about extracting only combs that are sealed two-thirds or more, like one I know; and another takes it all, sealed and unsealed indifferently, but heats it all before putting it in cans or bottles, like another I know; and the first man finds his honey, when a year old, fermenting and granulating at the same time; while the second man's neither ferments nor granulates—well, it leaves the first man saying, "Evidently I must heat all my honey. Or else I must extract only combs sealed straight to the bottom-bar. Which?" While still another man I know answers, "Neither. When the weather is warm and dry, take it all off, sealed and unsealed both (taking care to leave five or six combs, sealed solid, to each hive), and let it stand for a few days in a tank in the sun. You'll never have any trouble with fermentation." Then comes still another, saying, with a serious shake of the head, "Don't take any honey till it is sealed solid."

Taking only what is sealed solid is simplest, perhaps, as it does away with the ripening tank and the heating. Either of the other methods cleans up all the unsealed honey in the supers, and some seasons there is considerable.

* * *

THE NEW YEAR.

God set me in a shining field;
  My heart began to sing,
"Now I shall plow and plant, and reap,
  In time, some lovely thing!"

The days came bearing hours for tools;
  I lost them, one by one.
Then suddenly last night I cried
  For what I had not done.

Now lo, a gate—a fresh new field—
  And oh, I think God smiled,
Because I heard, so fatherly,
  "Try again, my child!"

FROM NORTH, EAST, WEST AND SOUTH

In Southern California.—The weather conditions have been very changeable here the past month. We have had several good rains in the valleys with snow in the mountains. The wind blowing across this snow caused quite cool weather for some weeks. Frost in some parts damaged the tender vegetables and flowers. It is raining today (Dec. 5), and about one inch of rain has fallen during the past 36 hours. The alfilaria has started to grow in some places. In favorable seasons this plant will furnish considerable nectar for the colonies to build up on. With mild weather the sages should show some new growth by the first of February. Some beekeepers have complained of the sheep men burning large areas, thereby destroying good sage ranges but making the grass grow better for sheep pasturage.

My sister, Elizabeth Andrews, has lately returned from France where she did Red Cross work as a member of the Stanford University Unit. When she enlisted for work overseas, she expected to do reconstruction work along the lines of architecture and beekeeping. The need for Red Cross workers was so urgent that upon the arrival of the unit in Paris, the entire time (over a year) was spent in ''searcher'' and embarkation work among the soldier boys. After seeing the way they live over there, she thinks that it would be a joke for an American to plan a house for a Frenchman. As for beekeeping, she did not see many bees, but those she did see were near Nice, in cement hives with tile roofs. She did not see the inside of any of these hives, but thought if any people in this day and age were content with those conditions why disturb them in their brief hour of happiness. Many an American is sadder and wiser after a trip over there and very well satisfied with things at home, thank you.

Bees are arriving as thick as tourists in southern California. Arrivals are as follows: At Riverside, one carload of bees, containing 805 colonies, from Idaho; one carload of bees, containing 810 colonies, from Utah; one carload of bees, containing 450 colonies, from Idaho; at Ontario—one carload of bees from Utah. This sounds like a market report, doesn't it? And this is only the beginning, as many more carloads are to follow. These bees are brought here for the winter, in order to get the benefit of our orange honey flow and to make what increase they can. Then they are returned to the North for the summer flow. The climatic conditions, combined with the early flow here (April and May) and the later flow in the Northern States (June, July, and August), make this system possible.

For those beekeepers desiring feed, some relief has been found. The beekeepers of Riverside and San Bernardino Counties are getting 50 sacks of sugar per week. While this will relieve the situation somewhat and will help to save many colonies, there is no doubt that if the beekeepers could have secured the needed sugar during October and November, many more bees would have been saved.

A little honey is coming in from a few favored localities in southern California, but the effect this will have upon the colonies is yet to be seen. In places some of the orange groves have been short of water during the summer. In the fall they were given a good irrigation, followed a week or so later by a good soaking from the heavens. These abnormal conditions seemed to bring on quite a quantity of out-of-season bloom, as it is called. One or two varieties of eucalyptus are also furnishing some bloom and nectar.

To say that the Short Course, given in Riverside Dec. 1-6, has been a success would be putting it mildly. Much enthusiasm was manifested from the beginning and the attendance was good during the whole course. From 100 to 150 was probably an average attendance. To have a week's course and have the privilege of hearing such men as Dr. Phillips, Demuth, and Sturtevant is certainly an inspiration. And Bixby—why we all like Bixby—and his talks were fine, just good California home-grown stuff. Mrs. Richardson, the woman beekeeper, gave us some good points. But when she speaks of using tobacco cans filled with cement to keep the hive covers from blowing off—well, all I can say is, I'll have to take off my hat to the fellow who uses enough tobacco to furnish cans for one of our 700-colony apiaries out here in California.

January is a good time to take stock, as it were. With the beekeepers of southern California it has been a very irregular season—perhaps unsatisfactory to the great majority and wholly satisfactory to very few. The year started with more new beekeepers, with more people wanting to invest in bees for the first time or to learn the business than ever before. This was due to the high prices received during the year 1918, together with the idea still held by so many people that it is easy money, because the bees do all of the work, leaving little for the beekeeper to do but to look in the hives occasionally, sell the crop of honey, and get the money. The season started with what the old-timers call a short rainfall. Perhaps normal weather prevailed during the year; at least no unusual climatic conditions existed, that I remember. Many apiaries were moved to the oranges, which yielded a usual crop and saved the day for many of us. With this one exception, I think the yield from all of our many varieties of honey flora was a disappointment and in many cases a failure. Almost all of the sages yielded no surplus. The black sage in a few localities filled the hives, leaving them with plenty of stores but nothing for extracting. The white sage was about the same but in some places yielded nothing at all. The purple sage, which perhaps yields most of all in tonnage in a good season, was a very inactive yielder this year. The wild buckwheat, which so many of the beekeepers of San Bernardino, Riverside, and San Diego Counties depend upon for most of their surplus honey, "went back on us this year," as the saying goes. Then the lima beans—the old Ventura County stand-by—for some reason failed to give nectar. This variety has for years been extensively raised near the coast of Santa Barbara and Ventura Counties without irrigation. Only once before, if I am rightly informed, did it fail to yield, and that was caused by a very hot wind which literally cooked the blossoms. These beans have yielded as much as 150 pounds per colony in a banner year. Another variety of beans—called Henderson's Bush Lima—has been very extensively planted the last few years. This variety is usually grown a little farther away from the ocean and is irrigated. The San Fernando Valley, a practically new section where thousands of acres of these beans were planted, was the haven of the migratory beekeeper this year. Nectar was yielded in abundance, and, while the bees on the old variety of bean were starving, those near the irrigated bush-lima fields were rolling in honey. Some beekeepers extracted, but most of them were quite satisfied to get the hives well filled for winter.

The price of colonies in southern California remains steady altho the demand is not nearly so great as was the case last winter. Very few apiaries are offered for sale. Supplies are very high as compared with the price a few years ago. Experienced help is hard to get, but there are many applications from both men and women who wish to learn the business. At our gatherings, one notices a constantly increasing proportion of young, enthusiastic men and women. A few of the real old-timers are still in evidence. New blood, literature on apiculture, short courses, and, last but not least, organization, will surely make 1920 a banner year.

A Happy New Year with much prosperity to all. L. L. Andrews.

Corona, Calif.

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In Northern California.—Again have we been favored by beekeeping short courses this winter. The Division of Extension in Agriculture, University of California, in co-operation with the Extension Service of the U. S. Department of Agriculture opened their first course during the third week of November at Davis. The second course was held at Fresno the week following. Dr. E. F. Phillips, George S. Demuth, and A. P. Sturtevant represented the Government. In general, Dr. Phillips spoke on the behavior of bees under seasonal conditions, Mr. Demuth would follow with beekeeping practices under like conditions, and Mr. Sturtevant would give an exhaustive account of bee diseases. The information imparted by the three men was of inestimable value to all commercial producers. There is no gainsaying the fact that many experienced and large beekeepers understood for the first time the fundamentals of the various methods which they were using, and, moreover, have now a clearer conception why some of their methods were not altogether satisfactory, and why others were quite successful. The local speakers were J. D. Bixby, C. B. Justice, Mrs. F. Richardson, and G. A. Coleman. Mr. Bixby dwelt upon various phases of practical work, which always aroused keen interest among his hearers; and Mr. Justice gave an account of the success of the California Honey Producers' Co-operative Exchange during the past year.

The attendance at the two courses was not nearly as large as it should have been. This was due entirely to the apparent lack of interest manifested by the University of California in the conducting of the courses. There are many beekeepers that received no notification at all regarding the courses, and others that received announcements only three days before the Davis meeting, which made it quite impossible for some to arrange their affairs in time to attend the entire course. It is indeed regrettable to have to make mention of this matter, and it is done only because the writer has been approached often by very many beekeepers who wished to know why the University practically continues to ignore the beekeeping industry in the State. Your correspondent must confess that he can give no definite answer. It is known that other State universities have responded and responded well to the requests made by the beekeepers, and that our memorandum, signed by over 130 beekeepers in attendance at the short course, held at Davis a year ago, and requesting University aid, has been unproductive of results. We have all been deeply grateful for the teachings given us by the men who are sent out by the Government, and, if we are to receive future help in this direction, we must have at least the active co-operation of the Division of Extension of the University of California.

Modesto, Calif. M. C. Richter.

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In Texas.—Every effort is being put forth to make the short course at San Antonio the best of the series that Dr. Phillips and his associates have conducted. W. B. Lanham, assistant director of the A. & M. Extension Service, has mailed almost 4,000 invitations. S. C. Hoyle, publicity agent of the same department, has placed notices of this meeting and feature stories relative to it in the hands of 250 editors in the State. H. J. Reinhard, acting State entomologist, has sent information to the apiary inspectors of the State urging them to use their influence to see that many attend this school.

Mathis, San Patricio County, has long been the home of noted beekeepers. Several years ago Mathis was mentioned with Uvalde as a center of the bee industry. By death of some of the veterans and by discouragement due to drouth this town had somewhat lost its standing, but you can't keep a good bee location hidden. This was a good year and next will be better. A county beekeepers' association with H. A. McCarley as president and G. W. Coltrain as secretary was recently organized. Both men are of the right sort and Mathis is again on the bee map.

Most fruit trees have lengthy blooming periods and have more than one blooming season to the year. The blooming period of the apple is so prolonged that it is hard to control the codling moth by spraying. A single tree will often continue blooming during a period of 30 days. The blooming of the peach is greatly prolonged, as the same orchard may be in bloom for six weeks. Again in the fall of the year these same trees bloom but not as heavily as in the spring. Bees were collecting nectar and pollen from plum and peach Nov. 12-20. It is this prolongation of blooming season that makes the fruit bloom of such importance to the beemen of Texas. In order of production of honey, fruit blooms collectively rank seventh.

One of the peculiar problems arising from the late Corpus Christi storm is the disposition of the hives, bee fixtures, comb, and even bees left in the drift by the receding flood waters. Some few apiaries in the storm-swept region were known to be contaminated with foul brood. Few of the beekeepers had names or brands on their fixtures. Now these hives, clean and foul, are mixed and scattered over a hundred miles of river valley and no one knows from where they came. So great was the number of such fixtures deposited in one county, that the State Entomologist, on the request of the beekeepers, placed a quarantine on all such articles, and advised the interested parties to hunt out and burn all worthless fixtures and comb found in drifts.

Not withstanding the fact that a heavy frost occurred Nov. 12, the bees are still gathering small amounts of stores. There was new honey on three or four frames to the colony Nov. 20. Most of this nectar came from *Aster lateriflorus*. A few other asters are still in bloom, but none of them can in any way equal the above, as it has been in bloom and heavily worked by the bees for six weeks. From a few places come reports and rumors of bees without winter stores. In those sections which were storm-swept, the keeper is in no way to blame, but in a few locations where the beekeepers took off the honey too closely and sold at a very low price, the keeper alone is to blame. We know of one man's buying back his own honey at twice the selling price. Beekeepers must realize that they cannot take all the honey from a hive at any time and that a supply of honey on hand for feeding is the best insurance one can have for another year's crop.

It is the belief of the best-informed beekeepers that there will be but few bees in Texas which will have to be fed sugar. In order that no beekeeper really needing sugar for feeding purposes should go without it, the manager of the Texas Honey Producers' Association induced the Imperial Sugar Co. to send a car of raw sugar to San Antonio for the use of beekeepers. It is hard to say just what the result of feeding this grade of sugar will be. Some beekeepers who have used brown sugar report good results, but on the whole it is recommended only as an emergency measure. If you have to feed and can get uninfected honey do not hesitate because of the price. Save your bees.

There is yet in the hands of the producers, the Texas Honey Producers' Association, and dealers much honey of known origin. If you are buying honey to feed, make your wants known and you can obtain honey from apiaries which are free from disease. This fact is guaranteed by the certificate of the county apiary inspector, which will accompany the shipment if you ask for it. Let it be remembered that if you have ever had foul brood in your apiary, there is liable to be an outbreak next spring whether you feed honey or sugar. It is common experience that after a period when the bees are on starvation rations, foul brood will again put in its appearance, even tho it has not been seen for several years. It is thought that this is caused by bees cleaning up the old honey which exists in the few isolated cells always present in the brood-combs.

College Station, Tex. H. B. Parks.

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In Iowa.—The Eighth Convention of the Iowa Beekeepers' Association will be considered as one of the most successful meetings in the history of the organization. All of the sessions were well attended and were thoroly enjoyed by every one present. The papers presented were of a very high character and are worthy of a wide distribution among the beekeepers of the State. The honey and biscuit banquet was the distinctive feature of the convention. The association had as its guests at this banquet some of the foremost people of Iowa, and all of them will be grateful to the honeybee for some time to come. The papers of this program will appear in the proceedings, which are expected to be ready for distribution early next year in the report of the State apiarist. Several new names were added to the list of membership of the association at this meeting. By vote of the meeting the action taken two years ago to raise the dues was put in force. Therefore the dues of the association for 1920 are one dollar and are payable at any time to the secretary-treasurer, the State apiarist, at Ames.

A very important step was taken by the meeting when it voted to seek affiliation with the State Horticultural Society. Such a co-operation will certainly result in benefit to both organizations. Another matter of much interest to all beekeepers was the appointment of a committee to co-operate with the State apiarist to determine the fair price for honey. This will be arrived at from the prevailing prices in the several sections of the State. This price will then be given wide distribution among the beekeepers. It is expected that the price will change from month to month but by co-operation the information can be secured. It is not expected that this work will in any way tend to fix the price on honey, for such is not the aim. Today a little honey is selling for 15 cents, more is selling for 30 cents, and considerable is selling for 25 cents. It would be a very great improvement for all concerned if a more uniform price could be maintained for this staple article of food.

In trying to arrive at a fair price for honey, how many know what it costs to produce a pound of extracted honey or a section? Beekeepers invest their money in bees, equipment, and supplies; they put in a certain amount of time to produce their crop. Are they getting fair returns of their investment? The time may not be so far distant when these questions must be answered.

At the Des Moines convention many of those present signified their desire to see a county beekeepers' association organized in their home county. There is now available a letter of suggestions for those interested in this important work. The State apiarist will be glad to send this letter and suggested constitutions to all who will write for them. Personal assistance will be given wherever possible. In every county where there are five or ten beekeepers interested in mutual welfare there should be an organization. A few counties have already realized the advantages of an association and have perfected an organization. These counties are now in a position to do much more effective work in any phase of the problems of the industry. An association is the final step in the "get together;" it is proof that your industry commands your respect. A few of the advantages of local associations are: larger quantities of supplies can be ordered, and the association discount is available; concerted action can be taken on bee-disease control; the honey market can be stabilized, and underselling, the suicide of marketing, can be largely eliminated; and large lots of honey can be prepared for the outside market. Organization is the foundation of industry, and beekeeping is an industry. The value of county associations is appreciated by the county agricultural agents, as in their last meeting this resolution was passed: "That county beekeepers' associations be promoted by the county agents where conditions justify, with the idea that a stronger State organization be formed thru which beekeepers may at a later date do collective buying."

The extension beekeepers' short course will be held at Ames during the week of Feb. 9, 1920. This course is designed primarily for those who have had some experience with bees. The Bureau of Entomology of the United States Department of Agriculture is co-operating in the conducting of this short course. The work given will be of great value to anyone who expects to continue to keep bees. With the importance of the industry in this State, there is every reason to expect that more beekeepers will be in attendance than in any other State. Details and a program may be secured upon application to the State apiarist.

During the coming year the Extension Department of the Iowa State College will organize boys' and girls' bee clubs. This work will only be undertaken during the first year in five counties. There is already much interest manifested in this line of work and the calls for the work will exceed what can be done.

A new and revised Beginner's Correspondence Course in Beekeeping is to be offered by the Extension Department of the State College during the coming year. The work given in such a course has proved very beneficial during the past two years, and the advanced requests for this course indicate that it is needed by the people of the State.

Ames, Ia. F. B. Paddock.

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In North Carolina. The fourth annual meeting of the North Carolina State Beekeepers' Association will be held at Greensboro, Jan. 8, and there is every indication that it will be the most largely attended and really profitable convention of beekeepers ever held in this State. The officers are Franklin Sherman, Jr., of Raleigh, State Entomologist, president, and James M. Gibbs of Reidsville, secretary-treasurer. The program for the approaching convention is being arranged with the assistance of C. L. Sams of the beekeeping co-operative service of the State and Federal agricultural departments, and will include a number of well-known authorities on beekeeping from without the State as well as numbers of the leading North Carolina beekeepers.

The association was organized in Winston-Salem in January, 1917, when Dr. E. F. Phillips of Washington, D. C., and E. R. Root of Medina, Ohio, had prominent places on the program and greatly quickened interest in improved methods of beekeeping. The North Carolina beekeepers are hoping to see and hear these distinguished authorities on bee culture again this year, along with other apiculturists from without the State that the officers of the State associa-tion may induce to attend and take part in the program.

The membership is extending into every county and locality in the State, and the good results in better beekeeping are evident on every hand. W. J. Martin.

Raleigh, N. C.

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In Ontario. The Ontario Convention was held, as per schedule, in Toronto on Nov. 11, 12, and 13. Owing to a smallpox scare in the city at that time, the attendance was not up to the usual standard. However, a good crowd was at every session, the last session being just as well attended as the first—and that speaks well for a three days' convention. As usual a lot of time was spent in discussing the disease situation, and it was apparent from the reports from all over the Province that foul brood was never a greater menace to the industry than at the present time, even if we know more about the disease than was formerly the case. Modern methods of transportation that so greatly facilitate the moving of bees from one place to another, are not without disadvantages, as there is no question but that disease is often carried from diseased sections to clean localities by bees being shipped in. It was generally felt by the members of the convention that the grant from the Government for inspection work was altogether too small to cope with present conditions, and a committee was named to wait upon the Minister of Agriculture and present reasons for a largely increased sum for that purpose. With the sum granted for the past few years, all the money would be spent in the first rounds of the inspectors and then they would be called off the road before the beekeepers who had disease in their yards could be visited again to see if instructions had been carried out. Foul-brood legislation is a difficult matter to consider and put into practice, so far as being just sure as to what methods to follow for best results; and I confess that the longer I consider the question the more perplexed I am in many cases as to what is the best thing to do or have done. One thing sure, present and past methods have not and are not giving the results that many of us fondly expected some years ago. Facts are facts, and even if they are mighty unpleasant to swallow sometimes, there is no use playing the ostrich act and trying to imagine that all is well when such is not the case. As stated more than once in these columns, I have nothing personal in view and blame no one in particular; yet the fact remains that foul brood has been checked but little, taking the Province as a whole, during the time we have been fighting it in the way we thought best. Whether increased grants will make a big difference or not is a question, but it will at least give us a chance to put forth greater efforts anyway.

I was gratified in view of what was said in this department in the November issue, to find that our president in his annual address strongly advocated a queen-rearing apiary under the management of the Provincial Apiarist, queens of a strain of Italians strongly resistant to European foul brood to be raised and sold to Ontario beekeepers, especially to those living in districts where black brood around them made pure mating impossible. More than that, it was a pleasure to find Prof. Millen, the Provincial Apiarist, anxious to help advance the scheme by all means in his power. We confidently look forward to a start being made next spring in this work—a **start** be it understood, as Prof. Millen rightly pointed out that it would be some time before queens could be reared in sufficient numbers to care for all orders that would be sure to come in. Now if the Dominion Apiarist at Ottawa will just fall in line, real help will be given to many beekeepers of a nature that will surely be appreciated.

Sugar has again advanced and today is quoted in Toronto wholesale houses at $12.21 for granulated. There seems to be a determined effort on the part of some dealers in honey to try to bear the market in this product, even if sugar and some other commodities are getting higher all the time. A few days ago I noticed where a reporter was getting loaded up on market conditions for honey, and I fully expected to see quotations in the daily press soon follow in line, as that is always part of the game in such cases. Sure enough, two days after this interview was published, the market quotations in the city press stated that dealers were paying from 21 to 22 cents for clover honey at ''country points.'' Now I am not saying but that honey may have been bought for that, but being in the market for a limited quantity myself a short time ago, I certainly could not find any offered at that figure. More than that, a canvass of the wholesale houses on the ''street'' failed to find any dealers willing to sell any honey to me at a figure that would allow them anything less than a big profit if they bought at 21. Twenty-six cents was the lowest quotation given me; and five cents a pound profit in a wholesale way is more than dealers always make, if I have been credibly informed. There appears to be little honey left in Ontario altho there may be more than I have an idea of. The bulk of the surplus still on hand, no doubt, is in Quebec where the crop was above the average, I believe. But with sugar liable to go much higher, as wholesale grocers predict, maple syrup quoted at $4.00 a gallon, and like advances in other products, cheaper honey does not look much like a possibility just at present—much as I dislike to confess, for I have earnestly hoped that not only honey but all other necessities of life would get much cheaper.

Speaking of high prices, I have just been looking over market quotations of clover seed, a subject that always seems to be in line with beekeeping to a certain extent, as we depend upon clover so much in our business. Today (Dec. 9) red clover is quoted at $31.00, alsike at $27.00, and sweet clover at $14.00 to $15.75. These high prices are in each case for No. 1 seed per bushel. Naturally with such high prices for seed, there is sure to be much clover seeded another spring.

Having need of some more cellar room for vegetables, etc., this summer we built a cellar at one place much on the line of the one illustrated and described by the folks at Medina. It is 10 by 24, inside measure, and 6 feet high, walls all under ground with reinforced cement top over all. At the southwest corner there is a hall leading out, four feet long and the same in width, with cement roof over it as with the cellar proper. There is a door at each end of hall and then there are steps leading up, with portico covered with roof. The cement top on the cellar has earth five feet deep in center, sloping to two feet at sides, and all sodded over. Having 60 colonies of bees, with no winter cases made to shelter them, we decided to put these bees in the cellar at one end, and so we partitioned off the east end of the cellar, leaving a space 10 by 12 for the 60 colonies. They have been in the cellar two weeks, and while it is too early to pass judgment on their wintering, I wouldn't be surprised before spring if we wish that we had them outside. Briefly I might say that the cellar is too damp as now ventilated, or shall I say **not ventilated**, as that may be the cause of drops of water hanging from the roof since the bees were put inside. But I started to write about the cellar because of my experience in getting reliable thermometers, and I have come to the conclusion that often unreliable instruments are used and different results are reported when perhaps all the difference is due to the thermometers. I first bought one from a druggist who was sure it was all right. Hanging among the bees two feet from the roof, it said ''47'' and I thought everything was all serene. But I was not sure about the matter; so I bought another from a druggist in another town, which was supposed to be all right too; but imagine my feelings when I found it said ''41'' when hung right beside the other instrument. I took it back and exchanged it for another one, which had been used for some years and which my friend felt sure was reliable. When hung up beside my ''47'' original, the thermometer last brought home said ''43.'' I determined to buy a tested instrument the first time I went to Toronto, but I happened to meet the principal of our high school, and he asked me to take up one of their laboratory thermometers which was tested; so I gladly availed myself of the offer and placed it in the cellar. It said ''44.'' My friend of the high school said I might test them myself by placing the thermometers in a mixture of snow and water, for if correct they should register ''32'' the freezing point. I tested all three in that way and found the laboratory instrument to say ''33;'' the one that registered ''43'' in the cellar stopped right at ''32'' exactly; while the one that said ''47'' in the cellar was up to ''36'' in the snow and water mixture. So regretfully I had to concede that the cellar was too cold, and that the thermometer registering 43 is correct. I suppose there are not enough bees to overcome the normal temperature of the earth and so the air is too cool and damp. As I see no way to remedy the condition I guess we will just have to wait and see what will happen with the thermometer standing steadily at ''43,'' never varying half a degree—no matter what the weather is like outside, be it zero or above the freezing point. Bees are nicely clustered but have quite a loud hum all the time, and in a few cases I have noticed small drops of moisture at entrance hanging from the inside of the hive. But the moral about thermometers is that they are apt to say almost any figure—at least the kind sold here in Ontario seem to be that way. A tested instrument is the only safe guide to go by.

Markham, Ont. J. L. Byer.

Scene at a really big beekeeping plant in California.

HEADS OF GRAIN FROM DIFFERENT FIELDS

A Detachable Porch to Prevent the Loss of Bees in the Snow. This is a subject not always referred to in text-books on beekeeping. It is, however, one of the troubles that beekeepers find very acute during some winters in this section of British Columbia. The writer received a communication the other day from a correspondent in Ontario in which he says: "In winter when a warm day occurs, my bees come out, fall in the snow, and die. I have seen the snow black with them." So the trouble evidently is not confined to this Province alone. Here the winter usually commences in earnest about the beginning of November, and the snow, as a rule, remains on the ground, several feet in depth, until about the end of March, a period of five months or more. During this time, generally in February, we nearly always experience a "chinook," a warm wind, and brilliant sunshine, which lasts a few days and raises the temperature during the day to almost summer heat. This has such an effect on the bees that they come out of the hives in thousands, drop on the snow, and a very large proportion become chilled and unable to reach the hive again. This means that the hives become terribly depleted of bees just at the commencement of the breeding season, when it is most important to the well-being of the colony that the life of every bee in the hive be prolonged to its fullest extent. The bees in single-walled hives, or others with but little protection, are generally the worst to suffer, as in this case the inside temperature is sooner affected than in double-walled hives, or hives standing in cases. The remedy usually recommended, of slanting a board in front of the entrance to darken it, by keeping out the sun's rays, or facing the hives to the north, we find of very little use under the conditions that prevail here. Some of the beekeepers have told me that they have nailed screen wire directly over the entrances, but this remedy is distinctly worse than the disease; for the bees, in their frantic efforts to get out, quickly raise the internal temperature of the hive so much higher that "sweating," with subsequent suffocation, ensues, and the colony is lost. An effective remedy, the writer believes, can be found by having a detachable porch, or annex, over the entrance of each hive, the front being covered with wire screen. This would need to be large enough for the bees to come out into and fly so that they would then have means of voiding their fæces. As the winter is now here, any beekeepers likely to be troubled in this direction might try the plan outlined and report the result of their experience next year.

Nelson, B. C. W. J. Sheppard.

[Ten or twelve years ago we tried wire-cloth vestibules or porticos for colonies wintered outdoors. The results were disastrous, since old diseased bees, instead of being lost outside, and thus ridding the colony of their presence, would attempt to get out, and in so doing stir up the entire colony, causing the cluster to consume great quantities of stores and finally resulting in dysentery. On suitable days these porticos were removed; but even this did not save the bees, and most of the colonies having porticos died by spring. Altho many similar devices for preventing bees from being lost in the snow were suggested and tried out by many beekeepers, we believe none proved very successful, and at the present time we know of no better plan than to shovel snow lightly over the entrances on unfavorable days when bees are likely to desire a flight.—Editor.]

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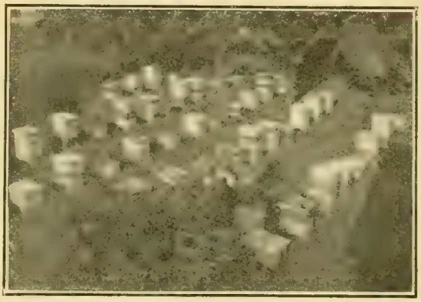
The Wife Cares for the Bees. Mr. Moore of Fort Atkinson, Wis., operates over 50 colonies for comb and extracted honey. Mrs. Moore manages the apiary very effectively while her husband is away collecting insurance in distant counties during the busy season. She also helps to assemble hives, frames, etc., which he makes during the winter with a small power outfit. Lawrence Bellman.

Evansville, Wis.



The apiary that the wife manages when the husband is absent.

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Beekeepers Exhibit Interesting Feature of Fair. Realizing the fact that to keep the price of honey where it rightly belongs, so that the producer may secure a fair return for his labor and interest on the money invested for bees and equipment, we must increase the demand by increasing the consumption of honey, and that the place to start to advocate the more general use of honey is at home, the Chenango County Beekeepers' Society staged one of the most interesting features of the Chenango County Agricultural Fair at Norwich, N. Y., August 26-29, by a fine exhibit of apiary products and ap-

HEADS OF GRAIN FROM DIFFERENT FIELDS

pliances, under the direction of the society.

There was a large display of bees in observatory hives, comb and extracted honey, beeswax, cakes, cookies and doughnuts made with honey, berries and fruits preserved with honey, jams, jellies, and marmalades made with honey, and a good display of apiary appliances. Our hustling secretary was on the job each day with a committee to answer questions, talk honey, and hand out samples of honey. At different periods we would demonstrate how the combs were uncapped and the honey thrown from the combs with the extractor, the combs being displayed before and after extracting. At the same time we would explain the difference between comb and extracted honey, and also the difference between extracted and strained honey.

The samples of honey were handed out by placing small round crackers on a small platter and about a half teaspoonful of honey deposited on each cracker, which made a very suitable and delicious sample. It was very rarely that a drop of honey was lost from the cracker. As fast as the samples were handed out we uncapped and extracted a new supply. One of the committee was talking honey all the time, and we always had a good audience. During the four days of the fair we handed out about 150 pounds of honey as samples, and on one day about 2,000 of Dr. Miller's leaflets on "Food Value of Honey."

We did not go to the fair to sell honey, as this season's crop of honey in this county is nearly exhausted. We went to advertise honey, educate the public in the more general use of honey, create a demand, and establish a fair price for our product, and to improve our knowledge of beekeeping by exchanging ideas, so as to raise more and better honey by scientific management.

While this is a county fair it was surprising how many were present from other States, and how much interest was displayed in our exhibit and talks on honey and its uses. It was also surprising how few ever heard of extracted honey or knew how it was produced. We feel that we have given honey a boost and have done some good advertising, that will be of great benefit in helping the sale of honey in this locality.

Norwich, N. Y. T. R. Gorden.

* * *

Propolis Makes Good Floor Paint. Whether or not propolis has any commercial value (I have seen the statement made that it has not), I have found that it makes a very satisfactory stain and wax for floors. After being charged by a painter several dollars for putting a coat of stain and then a coat of prepared wax or varnish on my hall floor I decided to try propolis on two other floors. I had for several years kept a box in my workroom into which I had put the scrapings from frames and sections until there was an accumulation of several pounds. So I put a lot of it into a large bottle and added denatured alcohol and some turpentine, letting it stand until the propolis was dissolved. I then painted the floors with it, using more alcohol to thin it to the desired consistency to spread properly. One coat gave as good color and surface as the two coats on the hall floor; and the only cost for the two rooms was about sixty cents for the alcohol, as I did the work myself. The propolis gives the floor a tough waxy surface that does not break nor show scratches as varnish would. As the painter claimed that the cost of the material he used represented the largest part of the charge for what he did on my hall floor, I am satisfied that propolis has a value whether it is commercial or not.

As the gum from the sweet-gum tree seems to be the principal ingredient of the propolis gathered by my bees, the odor from it is very agreeable. I decided, after the first trial, that it would be better, on account of the odor, to use only alcohol and omit the turpentine, as the latter has a very strong odor that requires some time to dissipate.

Since some of the scrapings had considerable wax, I decided to separate the wax from part of the propolis used, which I did by putting it into a pan on the stove with an inch or more of water in the pan. When all was melted, the wax was on top with the propolis underneath. Letting it stand until cold, the wax was taken off in a separate cake and the propolis was in a separate mass of hard gum. It was then pounded up and added to the first lot in the bottle. Whether I should have left the wax in or not I shall know from the test of use later on.

Sumter, S. C. N. G. Osteen.

* * *

Bees in the Southland. The present year I started with four colonies and increased to 13 by natural swarming. The 13 colonies produced 750 pounds of honey which sold

A Texas snowball

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for 25 cents per pound. My best colony produced 150 pounds of comb. This colony was a prime swarm, hived April 22 in an eight-frame Langstroth hive.

I see much said about large hives, but I think that the eight-frame Langstroth hive is large enough for the South. I think more depends on the beekeeper than on the hive. Some people claim that bees are more liable to starve in the smaller hive, but any man that will neglect his bees and let them starve is a poor beekeeper.

One of these colonies gave Holloway 150 pounds of comb honey.

The Southland beekeeper can well afford to give his bees winter protection. When the temperature ranges from 40 degrees above to 10 below zero I think it is time to give an overcoat, and this would save honey as well as bees. A picture I am sending shows some Texas snow.

I have had people tell me bees would do as well in box hives as frame hives, but I have never seen 150 pounds of honey from a box hive. We need a national law to force people to keep bees in frame hives; then and not until then shall we be able to control brood diseases. Eugene Holloway.

Holloway says: "Cotton is our best honey plant in this part of Texas. There are thousands of acres growing here every year."

Sanger, Texas.

Correcting Errors Indirectly Helps Beekeepers. D. D. Cavanaugh, in the July Poultry Success, says that instead of using a butter tub as a hive for bees, one may easily make a square box with roosts; and he proceeds to describe such a hive in detail ending with this remark:

"I like bees but do not fancy the factory-made hives that have to be fiddled with several times a season and the bees are continually swarming."

To this article J. H. McWethy replied in a letter addressed to Mr. Cavanaugh. It is as follows:

> First, I wish to state that I have always believed in D. D. Cavanaugh, on poultry, but I wish to take exception to your article in July *Poultry Success* entitled "Bees Did Not Swarm."
>
> The idea of every journal specializing in any particular line is to better the conditions for that line; you evidently have given very little, if any, study and consideration to the honeybees, or for what the modern beekeeper has been striving for the last 50 years. If what you state in your article is true, then such men as Quinby, Langstroth, Dadant, and last but not least, my dear friend, A. I. Root, would have lived in vain.
>
> I sincerely hope that you will be fair-minded enough to endeavor to counteract any harm that article may do, for many poultrymen may try just the thing you recommend; and, if they do, they are not only doomed to failure, but they will do irreparable harm to other beekeepers.
>
> You are evidently unaware of the following facts: (1st) Your bees will soon become black hybrids; non-resistant to disease; disagreeable to have around; and stinging persons, cattle, and horses.
>
> (2nd) Not having hives with movable frames, you have no way of combating that dreaded disease "foul brood," of which there are two species, European and American; both bad, but the latter deadly.
>
> (3rd) You have no way of controlling your swarms, which, no matter how you arrange the hive, will throw off swarms in May and June, unless properly attended to and the queens clipped. You may think they won't swarm, but don't fool yourself, D. D.; they will throw a swarm every year, even if you do turn all the butter tubs in creation on top for them to fill with honey.
>
> (4th) I beg of you to consider your neighbor beekeeper, who is trying to raise good, prolific bees and queens. Your black drones mate with his surebred queens, and all his work is for naught; his bees carry foul brood from your apiary to his clean colonies, and presto, he is wiped out.
>
> Dear friend, please stop and consider: Suppose that A. I. Root would put an article in Gleanings in Bee Culture, stating that the modern-built poultry house, recommended by D. D. Cavanaugh, was too much trouble, and that a few cracker barrels were good enough. What would you think?
>
> I am also a poultry fancier, breeding pure-bred poultry, and am a member of the National Columbian Wyandotte Club, and I strive to have the best equipment and it *pays*. I am also a beekeeper—I hope, a progressive one, and I use nothing but the best equipment, and it *pays*, in time, pleasure, and dollars and cents. I have a yard equipped with good modern hives, which pay $10.00 to $15.00 per colony, no matter what the year.
>
> If you are interested in beekeeping and desire

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any information, that I can give, I will gladly render you, or any prospective beekeeper, any assistance in my power. J. H. McWethy.

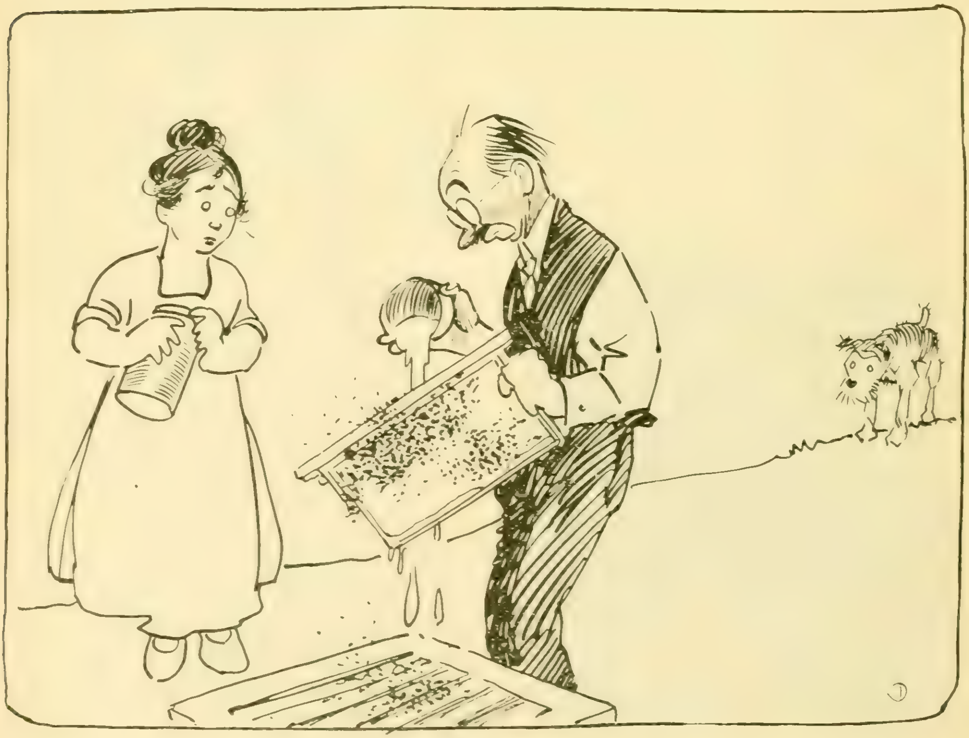
Cleveland, O.

[A number of farm papers have been publishing articles on beekeeping that contain what to the beekeeper seems remarkably poor advice. We believe it quite worth the readers' time to correct such impressions by writing directly to the author of the article as Mr. McWethy did; or better still, remonstrate with the publishers.—Editor.]

* * *

Bee-veils for Beekeeperettes. Grace Allen need never say again, "I always knew a bee-veil was unbecoming." Mr. Mendelson's farmerettes have evolved bee-hats and veils that are really becoming. Now I know that Gleaning's Editor himself has "covered" Mr. Mendelson's apiary and the farmerettes; but being a mere man, he couldn't be expected to discover **all** the reasons why those farmerettes were so charming. For the benefit of other beekeeperettes (why not call them that?) let me state that the pleasing effects produced by these bee-hats and veils were due to wise choices in the matter of color and material. The designs were not new. For instance, one outfit began with a 15-cent straw hat, very light and open in construction. This was covered with a piece of china silk with splashes of green all over it. The owner told me that the silk was a "relic of the past," stitched on with the sewing machine. It covered the crown and went over and under the brim, and served to keep out the bees and add protection from the sun. The veil was made of pretty figured green silk and green silk net. Underneath could be seen quantities of curly, golden hair. Now, doesn't that sound fetching? Another model was made on the same kind of a hat, but the trimmings (they really amounted to that) were of navy blue silk net and navy blue china silk with white polka dots. From underneath this creation. peeped black eyes and black hair. You see the variations can be endless. A hint to the wise is sufficient.

Let the farmerette costume and the be-



BACK LOT BUZZER

Ma says that's a great suggestion of Professor Baldwin's, where you introduce a new queen by drowning her in a cup of honey, but who'll be the life-saver that knows how to operate a pulmotor?

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coming bee hat do for the beekeeperette what her crisp, starchy uniform has done for the trained nurse.

Ventura, Calif. Flora McIntyre.

* * *

Clipping on the Comb Not so Awful. In clipping queens on the comb, authorities say that practice is everything. I can not say that. When I purchased my first hive of bees, a book came with them—the A B C and X Y Z of Bee Culture. The first thing I saw when looking it over was a picture of a man making a dive at a queen with a pair of shears while she was on the comb. The thought of all that might happen to the bees as well as the queen made my blood run cold, and I never could think of doing anything like that. But when spring came, and the bees were at work full blast, I found that something must be done. So I opened up the hive and took out the second frame. There on the comb was the queen. She was walking about with her head down and her wings pointing upward as much as to say, ''Why don't you clip me?'' I held my hand near her just to see how she would like it, and to see what sort of shears I would need for the business. I pictured in my mind's eye a long and slender pair of scissors. Then the thought struck me, ''Why not get a pair and do it now?'' I soon had the queen clipped, taking off a bit at a time, even trimming up both wings on each side till I had them looking just right. The following spring I had six queens to clip, and I was even more artistic, for I thought they seemed to enjoy it. The third year gave me 28; and when I was thru with this bunch I felt as if I was quite a hand in ''dolling'' up queens in short dresses. Frank M. Clark.

Reading, Mass.

* * *

An Old-time Patent Hive. Do you know of an older patent hive than this? I bought it with other colonies this spring. I asked the man how long he had owned this hive, and he said it had been on the place ever since he could remember, and he is 45 years old. The hive belonged to his father, and in the memory of the son has never been without bees. It has never been protected against the weather and has never been repainted. The paint is all gone, but the printed words are very plain and stand a sixteenth of an inch above the wood. The bees are the blackest I have ever seen, but not crosser than our Italians. I think this hive will be of some interest to the old-time beekeepers.

Conneaut, Pa. C. Klabuhn.

Dreams.—By Bill Mellvir

(With apologies to Walt Mason)

Sometimes I dream I'm living where June is always here, and sunny days are giving to life the utmost cheer; where flowers are always springing rich nectar by the tank and bees are always bringing it in to fill the bank. I dream that I am owning beeyards on every hill, where honey tanks are groaning and more tanks yet to fill. I have a dozen flivers to haul my honey home; the stuff my coin delivers inflates my noble dome. I live in gaudy splendor while chasing latest fads; I have the legal tender, I'm shelling out the scads. But when I wake next morning I find my dream a fake; no mansion I'm adorning, I'm just a country Jake. Instead of heavy working the bees just try to rob, and trouble's always lurking unless I'm on the job. Whene'er I dream of nectar just oozing like a flood, I'm due for some dejector to cool my ardent blood. But when I dream of robbing I know it's really true, for trouble's always bobbing where fine air castles grew. For dreams can not be trusted when of too florid hue, and many folks go busted from thinking such dreams true. Now when I count my chickens I wait till they are hatched, for don't it beat the dickens how day-dreams must be patched? So don't weigh up your honey until it's in the tank, and don't check out your money before it's in the bank.

BEES, MEN AND THINGS

(You may find it here)

MY bees swarmed in June. One of the new swarms made five supers of 24 sections each and one 8-frame full-depth brood-body, all full of honey besides their winter supply. I left the full 8-frame box on the hive for winter. —John Deml, Steele County, Minn.

The value of Iowa's honey crop for the season of 1919, 13,260,000 pounds of honey, was $2,652,000.—Burlington Hawkeye, Dec. 11, 1919.

This has been a bumper year here for the beeman. Some colonies have produced as much as 50 pounds of fancy comb honey. The market was good. I sold for 33 to 48c per section.—B. O. Brown, Sullivan County, Tenn.

There are no up-to-date beekeepers near here. Nearly all keep bees in log gums. The few that have frame hives use cobbled-up affairs, and their honey is chunk honey. It sells for about 30c per pound locally.—Geo. W. Louder, Sussex County, Del.

I shook a laying-worker colony. Then I took a laying queen from my yard and ran her in at the entrance. Five minutes later I took a peep, and the queen was there quite at home. It was not long before the bees shoveled out the worker drones.—John W. Whitfield, Jefferson County, Pa.

At the Washington State Fair held at Yakima in September six exhibitors displayed about three tons of honey in an individual apiary building. It would be difficult to excel the extracted honey produced in the Yakima Valley of Washington, when considering color, body, and flavor.—Geo. W. York, Spokane County, Wash.

I was glad to see G. C. Greiner classify the Demuth plan of wintering. Of all punk wintering schemes I think the Demuth plan walks off with the blue ribbon. Pretty soon some one will come forward with a plan where each bee is to be wintered in a separate compartment with a trained nurse in attendance. Let's talk about something else besides packing for a while.—H. V. Schoonover, Adams, Ills.

A word about Queensland beekeeping. Since 1914 we have had one good season and four bad ones. At the present time we are in a drouth that has lasted for three years with little or no rain, and still no signs of any. It is called ''sunny Queensland'' and is keeping well up with its reputation, but the honey pot is empty as well as a great number of the boxes.—H. Simpson, Maryborough, Queensland, Australia, Sept. 20, 1919.

I have been wondering what will be the value of the honey and wax statistics gathered by the census the coming January. Farmers are to tell how many hives they had on hand Jan. 1, and how much honey and wax they produced in 1919. A farm is at least three acres, except when a smaller tract produced $250. A great many beekeepers have a smaller tract, and produce less than the required value of honey. Hence will be omitted in the census. The total of such producers would, if listed, undoubtedly be a large sum, but only guesses are available as to what it is.—C. W. Campbell, Pulaski, County, Ills.

It seems to be the general opinion here this fall that the bees are short on stores for the winter; and there is no sugar to be had. I have been out hunting wild bees several times with some old timers and almost without exception those bee trees we have found and cut into contained colonies without sufficient stores for the winter. Some had scarcely a pound and others from five to ten pounds, but the majority had nothing, and they were large colonies. As many as 25 wild swarms have been found in this vicinity this fall, an unusual number, I should say. Some of them have been taken up and are doing well. We are getting 35 and 40c for comb and 45c for the 16-oz. bottle.—Allan H. Faxon, Worcester County, Mass.

In securing some information relative to making arrangements for the co-operative marketing of honey, 1,600 questionnaires were sent to those beekeepers who received the Beekeepers' Letter. Of that number 350 replied. These replies were summed up, making some rather interesting figures of which I give the following: Number of colonies, 17,888; number of pounds of extracted honey produced, 557,253; number of pounds of comb honey produced, 156,997; the average price received for extracted honey sold at both wholesale and retail is 25.8c per pound; the average price received for comb honey, 35.8c per pound. At the time this questionnaire was sent out, about the first of November, beekeepers reporting had on hand a total of 106,748 pounds of honey which they expected to sell at wholesale. Out of this number we gather the following statistics: Number of beekeepers having 100 or more colonies, 52; average number of colonies per beekeeper, 179; average production per colony, 57 pounds; average return per colony for both comb and extracted, $14.87; 48 out of the 52 beekeepers produced extracted honey; average return per colony for extracted, $15.44; 18 out of the 52 produced comb honey; 14 of the 52 produced both comb and extracted honey.—B. F. Kindig in Beekeepers' Letter for Michigan beekeepers, November, 1919.

JUST NEWS

Editors

THE national conference of delegates representing all beekeeping organizations of the United States, teachers of beekeeping, and members of allied trades will meet at Muehlebach Hotel, Kansas City, Mo., Jan. 6 to 9. President B. F. Kindig and Secretary Chas. B. Justice of the National Beekeepers' Association have earnestly sought to make this meeting a notable one, for nothing less than a thoro reorganization of the National Beekeepers' Association along better and broader lines is to be determinedly undertaken. Every beekeepers' association in the country should send a delegate or delegates. Representatives of all legitimate beekeeping interests in the country have been invited to attend. This conference is called by the National Beekeepers' Association.

* * *

The Ontario County (N. Y.) Beekeepers' Society will hold a convention at Canandaigua, N. Y., on Jan. 13. F. Greiner, Naples, N. Y., is secretary, who will be glad to furnish information regarding this meeting.

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The annual meeting of the Missouri Apicultural Society will be held the third week of January during Farmers' Week, at the University of Missouri, Columbia. For further information address L. Haseman, Entomologist and Chief Inspector, Columbia, Mo.

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The annual meeting of the Washington State Beekeepers' Association will be held in the assembly hall of the Chamber of Commerce, Seattle, on Jan. 22-24. Co-operation and some measures of defense against spraying poison will be two chief topics of discussion at this meeting.

* * *

The Wayne County Beekeepers' Society will hold their third annual meeting at the Grange building in Newark, N. Y., on Jan. 30, 1920. All interested in beekeeping are invited to attend and take part in this meeting. Geo. H. Rea will be present. For program, address Deroy Taylor, Newark, N. Y.

* * *

The annual convention of The National Beekeepers' Association will be held at the Hotel Statler, Buffalo, N. Y., March 1 to 3, 1920. Part of the interesting program will be a report of recommendations from the Kansas City conference of delegates representing the beekeeping interests of the country to be held Jan. 6 to 9.

* * *

The annual meeting of the New Jersey Beekeepers' Association will be held at Trenton on Jan. 15 and 16, 1920. An excellent program has been prepared, on which appear the names of Harry W. Beaver, Walter C. Morris, Dr. E. F. Phillips, and E. G. Carr. The last named is secretary of the Association, who may be addressed at New Egypt, N. J., for further information regarding the meeting.

* * *

The ninth annual winter beekeepers' short course of Ontario Agricultural College will be given from Jan. 13 to 24 at Guelph. The course is intended especially for the beginner in beekeeping. The course will be under the direction of F. Eric Millen, Provincial Apiarist, which assures its excellence. Geo. H. Rea of New York State will be one of the instructors.

* * *

The annual meeting of the York State Association of Beekeepers' Societies will be held at the Joseph Slocum College of Agriculture at Syracuse University, Syracuse, N. Y., on Tuesday and Wednesday, Feb. 3 and 4, 1920. O. L. Hershiser of Kenmore, N. Y., is president, and J. H. Cunningham, 303 University Place, Syracuse, N. Y., is secretary and treasurer. Address the latter for program or information. Dr. Burton N. Gates, State Inspector of Apiaries for Massachusetts, Geo. H. Rea, Dr. E. G. Carr, S. D. House, and Earl W. Hallenbeck are among the speakers on the program.

* * *

A course for commercial beekeepers will be held in connection with the annual program of the Ohio Beekeepers' Association during Farmers' Week at the Ohio State University of Columbus, from Jan. 26 to 30. Dr. E. F. Phillips and Geo. S. Demuth will be in charge. This is the same extension-work course as as been given in other States, and is of very great benefit and value to beekeepers. Detailed information may be secured from Prof. Jas. S. Hine of the Ohio State University, Columbus. The beekeepers of Ohio never before have had such opportunity for best instruction as this course offers.

* * *

The proprietor of ''Pelican Apiary,'' New Orleans, La., is now in the Ohio Penitentiary, having been convicted of embezzlement of trust funds in Cleveland, O., to which place he was brought in November to answer to a grand jury indictment. His real name is Harry A. Anderson, altho he went under the name of J. M. Jenks in New Orleans. He advertised bees and queens in bee journals last April and May and swindled a considerable number of beekeepers. He falsely represented himself and his business references to Gleanings and other bee journals. He has proved himself a rascal of the first water, and the longer he remains in the penitentiary the better for society.

GLEANED BY ASKING

Iona Fowls

QUESTION.—I have a few colonies of bees, and each has over 40 pounds of honey for winter use. I have some unfinished frames of honey that I intended to give them in the spring. Is sugar syrup better for brood-rearing than natural stores? If so at what time would it be best to start to feed? I have about 100 old basswood trees around where I live, so I would like to have the colonies as strong as possible for the basswood. John Arbtin.

Iowa.

Answer.—There is nothing so good for brood-rearing as natural stores. Sugar syrup is all right as a winter food, but is not as good as honey for brood-rearing, in the spring; nor do we recommend stimulative feeding in the spring, altho a few good authorities such as Alexander have recommended it in the past. As long as your colonies are kept strong and supplied with a good queen and plenty of stores, they will breed in the spring and supply you with plenty of workers in time for the harvest.

Question.—I send you under separate wrapper a sample, number 223, of honey. Will you examine it and let me know if you think it is pure honey and if it would be safe to feed to my bees for winter stores? It is so different from our honey that I am fearful I might lose my bees.

Kentucky. S. C. Kirkpatrick.

Answer.—We have not had an analysis made of the honey, but we should say from the taste of it that it is not adulterated with glucose. If glucose were present the mixture would be thicker than shown in the sample. If it were adulterated with sugar syrup, that would not hurt it for feeding bees—it would be all the better. You, of course, know, however, that feeding honey of any kind to bees—unless you know its source—is attended with a great deal of danger from foul brood, and the only thing you can do is to boil it for 15 minutes in a closed vessel, being careful in the meantime that it does not boil over. Such honey when fed to bees is not suitable for winter food where the bees cannot have a flight at least once a week. In your climate we would be of the opinion that the bees would fly often enough to prevent dysentery. The quality of the honey is very good, and, if you know it came from a locality where there is no bee disease, you could feed it without boiling; but in order to do this it would be best to thin it with a little water.

Question.—The following is clipped from "The Christian Herald" of Oct. 25:

"It seems that the old song about the busy bee has been a flagrant imposition on a confiding people. As a matter of fact, the government experts have found that about half the bees have been confirmed loafers and have been getting jobs caring for baby bees just to escape real work. Not being able to reason with the idlers, the experts have taken strong means to rectify matters. They found they couldn't take a single bee out and argue him into working, so they have reconstructed the hives so that it is a case of work or starve. By carefully studying the habits of the insects it was discovered that a hive could be made which would permit the care of the infant bees by just a few of the adults where heretofore nearly half the able-bodied individuals were escaping work by playing nurse. In the new hives the government finds that out of 40,000 bees, formerly divided equally between nurses and honey-makers the honey-makers are in a great majority. This increased efficiency last year not only took care of a large growth in honey consumption in the United States but made it possible to increase the export fifteen times."

I find after reading it three times, that my mind is in a mingled condition of amusement, incredulity, and wonder. Would like to see comment in Gleanings on the same. S. C. Lord.

California.

Answer.—The article is a misleading one. There is already so general an ignorance concerning bees that it seems a great pity to increase such ignorance by foisting this sort of stuff on the public thru religious and other papers. It is true that colonies do sometimes loaf because they have not sufficient room in the brood-chamber or in the supers. In such a case a larger hive would remedy the matter. Sometimes colonies also loaf because of a poor queen. If the queen is replaced with one from a better working strain, the bees will seem much more industrious. The present tendency in hives is toward a larger rather than a smaller hive; so we hardly see how reconstructing the hives would cause the bees to ''work or starve,'' for there is really more chance of the colonies starving when the hive is small than when it is large. Moreover, the government has no corner on large hives. When good Italian bees fail to work it is because the colony is diseased, the queen is in some way defective, or there is no nectar in the fields. But even when bees do for any of these reasons fail, they are not playing off by acting as nurses. That is fiction, pure and simple. We might also add that neither the government nor any one else has been able during the past year to change the habits of the bees to such an extent as to increase the export of honey 15 times.

Question.—If there are many conditions under which queens may be successfully introduced by simply dropping them on the combs, please state what are these conditions. Philip D. Bishop.

Nova Scotia.

Answer.—We have sometimes used the fasting method with success after making the colony queenless for from 34 to 48 hours. The queen to be introduced is left without attendants and with nothing to eat for about 45 minutes, then the hive is opened very gently so that hardly a bee knows that the hive has been touched. We prefer to have a carpet, instead of the cover, over the top of the hive, when introducing in this way. We simply raise the corner of the carpet very gently, then give one small puff of smoke, run the queen in, and then adjust the cover. Again, some introduce young virgins by simply running them in at the top of the hive. In fact, an old queen may sometimes be removed and a young virgin successfully introduced by placing her right on the comb, which is then put back in the hive.

Question.—I have two one-frame nuclei of Golden Italian bees, which have been troubled with moths. Before getting these one-frame nuclei I lost three full colonies from the same cause, two that I had bought from a near-by beekeeper and one that I had hived from a tree. Of course, the moth trouble is over for this year, but my colonies or nuclei are so weak that I don't know how to winter them.

Maryland. S. O. Neal.

Answer.—Poor queens sometimes allow their colonies to dwindle until they become too weak to defend themselves. Also, there are some strains of bees that do not readily resist the wax moths, but where there are good strong colonies of leather-colored Italian bees there should be no trouble from moths. It is not surprising that moths should trouble one-frame nuclei. Even when composed of Italian bees they might have trouble defending themselves. Also, it is rather difficult to winter such small nuclei, altho this might be done in the cellar if the conditions were just right. The best thing to do with small nuclei at this time of the year is to unite them; but, unless you can unite to cover at least five combs, you may still have trouble in saving them.

Question.—How many queens can I keep in one nucleus and how long? William Heart.

Illinois.

Answer.—It sometimes happens that during the summer the beekeeper has a number of extra queens and no place to keep them. In such a case a few queens may be kept in cages placed immediately over the cluster of bees, where they will be taken care of for a week or 10 days. If such queens are placed over strong colonies, they will be much safer. We have had as many as two dozen thus caged over a colony at one time.

Question.—I caught a swarm of Italian bees and hived them in a box for about one week. Then I took them out of the box and placed them on foundation, but the next day they swarmed again. I put them in another box and left them for a day. Then finding nothing wrong with the hive I put them back. But next day they cleared out. A friend of mine who is an experienced beekeeper had the same trouble with the same swarm. He hived them, and the queen laid eggs in the comb; then they left, leaving the eggs which were nearly hatched. Could you tell me why they wouldn't stay on the foundation? H. V. Albrecht.

New Zealand.

Answer.—Colonies of bees often behave in this way when put on foundation. If given drawn comb and a frame containing young larvæ a swarm will generally stay contented. When moved from another hive on to the foundation a colony is not as likely to be contented as is a swarm that has just issued; for, in the latter case, the bees are loaded with honey so they not only have something to eat, but also are able to draw the foundation a little, thus giving the queen a chance to lay. It is rather unusual for a colony to leave after the queen has begun laying eggs; but, if the hive is filled with foundation, this sometimes occurs.

ANSWER BY J. H. LOVELL.

Question.—Under separate cover I send a large bee or fly that I found in July near one of my hives, with a honey bee grasped in its mandibles. I am sending it to you for classification.

Ohio. J. E. Venard.

Answer.—The insect is not a bee but a fly; if you had observed it more carefully, you would have noticed that it had only one pair of wings, the second pair being replaced by a pair of balancers or "halters." This mistake is often made, and I once had a collector of great experience send me a fly for a bumblebee. This fly is one of the robber-flies, or *Asilidae*. Some of the species are quite stout resembling bumblebees in form, the resemblance being increased by a dense pubescence of black and yellow hairs. They are extremely predaceous, and such powerful insects as bumblebees and even dragon-flies become their prey. They also feed on larvæ. This species, *Trupanea apivora*, is the bee-killer and captures the honeybee on the wing. Riley states that he has known one of them to kill 141 bees in a single day.

ANSWER BY E. R. ROOT.

Question.—I am desirous of moving to California and engaging in bee culture and chicken-raising for profit. Having no experience with bees I will probably have to start on a very small scale with them but hope to get a good location and grow into the business. I would be thankful for any helpful information you can give me concerning the State.

Florida. R. E. Mathews.

Answer.—Beekeeping in California is a flourishing industry from a point 100 miles north of Sacramento to the southern boundary of the State. The largest beekeeping operations, however, are from Fresno on down to San Diego with Los Angeles as a center. There is considerable unoccupied territory in the northern portion of the area indicated, and some places farther south. The situation is shifting so much that the writer will be unable to give you exact places. He would, therefore, recommend that you buy a tourist round-trip ticket with the privilege of a stop-off. There are beekeepers at almost every postoffice; and if you will make a little inquiry you may find where they are located, and from them can get your information at first hand. The climate of California differs from that of southern Florida in that it is a little colder, with more variation between night and day. Except within 25 miles of San Francisco there is very little change of climate from Sacramento down to San Diego. The nights are colder all over the State than in Florida, and during the middle of the day it is not as hot. Unless you desire a change of climate and wish to go where you can get some real mountain scenery, you had better stay in Florida if you wish to get unoccupied bee territory.

OUR HOMES

A. I. ROOT

My grace is sufficient for thee.—II COR. 12:9.
Before they call I will answer.—ISAIAH 65:24.
Neither shall there be any more pain.—REV. 21:4.

SEVERAL weeks ago I got a little scratch on the forefinger of my right hand down near the root of the nail; but as I had a lot of work in the garden in the way of gathering my crops, etc., I paid but little attention to the hurt. But it kept getting worse. Sometimes it would seem almost well, and then it would get a bump in some way during the day and then get worse. I tried protecting it with a little piece of cloth tied over the end of the finger; but the cloth soon got in the way, looked unsightly, and I neglected it until it became so bad that I had to take it to the doctor. He said he ought to have had charge sooner. But he cauterized it, putting on some salve. Then he tied it up and I went home. Toward night it was so painful that I called on him again. He said it would probably gather and break, but added that my best way was to get along with it as it was, as well as I could. Toward bedtime, however, the pain became so acute, I felt sure I should not be able to sleep a wink unless I had some relief. Of course, my little prayer, "Lord, help," stood up before me; but one of my skeptical friends had suggested to me—and he did it very kindly—that my answers to prayer were a good deal selfish ones; and I think he suggested, too, that I encouraged the idea—at least indirectly— that God seemed more willing to answer *my* prayers than the prayers of other people. In thinking it over I was impressed with the idea that perhaps I had been—at least to some extent—unwilling to bear the trials and crosses that seem to be the common lot of humanity. Had I really any right to pray that I might be delivered from whatever troubles confront me, as I have been doing the greater part of my life? I thought of Paul and his thorn in the flesh, and felt at the time that *I*, just then, had a "thorn in the flesh" in very truth; and the thorn seemed to be right down at the root of that finger-nail. Then I remembered good old Isaac Watts' little hymn:

Must I be carried to the skies
On flowery beds of ease,
While others fought to win the prize
And sailed thru bloody seas?
Since I must fight if I would win,
Increase my courage, Lord;
I'll bear the toil, endure the pain,
Supported by thy word.

Am I going to be a man and take my share of pain and suffering like other people, or shall I be a "baby," when things like this come to pass? Then I remembered again the reply that came to Paul, "My grace is sufficient for thee." I was just getting ready to take a bath before retiring. After thinking the matter over I ventured a little audible prayer something like this:

"O Lord, give me grace to bear this pain (even if it should prevent me from sleeping a wink tonight), if it be not consistent with thy holy will to have it removed."

My good friends, especially the ones who send me so many kind words of encouragement, please take a good look at that brief prayer. Is it all right? Would there be anything selfish or inconsistent in any poor suffering child of humanity in uttering such a prayer? Now for the result; and may God's Holy Spirit help me to tell it, so far as I am able, exactly as it happened.

Almost as soon as the prayer was uttered—at least within a few minutes—the pain ceased. There was inflammation, and the arm had been feverish clear up to the elbow; but almost in an instant it was gone. I went to bed and slept soundly. In the morning, when I came to examine the finger, to my great surprise the swelling had gone down, and everything was almost normal. I showed it to Mrs. Root as an evidence of the wonderful answer to prayer. By the way, let me digress a little.

Now, there is something more about this wonderful answer to my prayer. All I have said *is* strictly true; but after breakfast I went to remove the bandage I had worn during the night, and the antiseptic gauze, that the doctor gave me to do it up with, had a stain right over the spot nearest the finger-nail.

"Hello!" said I; "here is some explanation for this sudden relief." Then I proceeded to soak the disturbing finger in a glass of hot water to soften it up, and then I discovered the sore had broken during the night, and this was what made the stain. Then I went back to what happened after my prayer the night before. I was ready to get into the bathtub, but the water was almost too hot. I put my hand in to see if I could bear it—the "sore" hand, mind you, for it was my right hand. It was pretty hot, but I thought I could stand it, and proceeded to take my bath. Probably the pain ceased at about the moment I put that hand in the hot water. I used Cuticura soap that night in order to be sure of using nothing that might do harm. The doctor said the Cuticura soap would be all right; so by the time I got thru bathing, the suffering finger got a pretty good soaking with soap and hot water; but it did not occur to me at the time that taking a bath had anything to do with stopping the pain, for just before taking the bath, I had soaked the finger a long while in hot water. Let me digress again:

Some of you may say I have admitted that my prayer had nothing to do with my speedy recovery. In fact, you may say I had brought it about myself by *accidentally* getting the water too hot in the bathtub. Yes, perhaps I did. But now see how nicely our second text comes in here:

"Before they call, I will answer."

When I got that water too hot in the bathtub, may it not be that I, unknowingly, was really answering my prayer, or helping to answer that prayer, even before the prayer itself had been uttered? and it did not spoil my faith a particle when I traced up how all that prayer came to be answered almost instantly. All I cared for, and care for now, is for speedy and prompt answers. "Give God the glory."

As I want this Home paper to be helpful, both bodily and spiritually, I want to say a word more about the use of hot water.

When Gleanings was printed (years ago) by windmill power, in putting up the machinery I fell and sprained my ankle. The pain was so severe that I could hardly keep from screaming outright. There was a doctor next door—a particular friend of mine. I sent a "rush order" for him. When he came in I said:

"Doctor, please give me some chloroform or something else, for I can't live very long with this awful pain."

Perhaps I exaggerated a little, but I was glad to hear him say, "Mr. Root, I can stop your pain almost instantly without any chloroform if somebody will bring me a kettle of hot water."

There was a fire in the furnace. I was then a manufacturer of jewelry. The steaming kettle was quickly at hand. He called for a pail partly filled with cool water. Then he poured in the hot water until he thought it was just right by putting his hand in.

"Here," said he; "put your foot in that hot water."

"But, doctor, that is too hot. I can't stand it."

"Yes, you can. It may be a little painful. But you are to decide which pain is the worse—that of the hot water or that from the sprain."

In about a minute I began to laugh; and, as I was a very busy man, in two or three minutes more they brought me a pile of letters, and I went on with my work. The doctor directed that I should keep the kettle there and fill up with hot water occasionally in order to keep the temperature high enough. I had no more trouble with the ankle after that. Whenever the pain came on I resorted to the pail of hot water again.

Years afterward I had an attack of acute inflammation of the neck of the bladder. A hurry call was sent to a doctor; and I do not know but I said the same thing to this doctor. I was glad to hear him respond much as the other one did—"Mr. Root, I am glad to tell you that I can relieve your pain almost in an instant without any medicine whatever. Just get into your bathtub and fill it up pretty well with water *as hot as you can stand it.*"

The remedy worked exactly like the other. I did not take any medicine, and have had but very little of that trouble since; and during the years that have passed I do not know how many times I have been able to relieve suffering—in fact, stop it almost instantly—by suggesting the use of hot water.*

A little while back I had an article entitled, "Stop, look, and listen." Now, when you get into trouble, not only "stop, look, and listen," but remember what I have said about hot water—a remedy that costs nothing, and does not do any injury like the use of drugs and medicines, mind you.

Besides the hot water, do not forget to call to the great Creator who made us, and placed us here, in his own image. Ask him, as I did, to give you grace to bear the pain, if it is his will that you should bear it, and to sharpen your intellects in your effort to find out the cause of your trouble and the best and cheapest way out.

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*Many doctors seem to have the idea, or at least in times past they had the idea, that when they are called to treat a patient the patient may think the doctor has not earned his money unless he gives medicine of some kind. See page 609, September issue. Now, I have felt for years past that I should very much rather pay a doctor for advice without any medicine—that is, if no medicine is really needed—than to pay him for some powders, tablets, etc. In the two cases above mentioned, the doctors gave no medicine at all; and I was exceedingly glad to have them show me how to perform a quick cure without anything further than hot water—something that is always, or at least generally, right at hand.

Before closing I want to say just a few words about the matter of grace, mentioned in our first text. What does grace mean —a word used so often in the Bible? The best explanation I can give is to quote from a blessed old hymn:

> Oh, to grace how great a debtor
> Daily I'm constrained to be!
> Let thy goodness as a fetter
> Bind my wandering heart to thee.

There has been quite a little discussion of late whether the Bible is *all* the very inspired word of God. Well, maybe I am not strictly orthodox when I declare that, so far as I am concerned, it does not seem to me to make very much difference. I insist that *this* is strictly true; That God's loving words and admonition to the children of men are *most certainly* inspired; and one who reads his Bible attentively and makes use of these most precious promises will have inspiration himself, from on high, that is worth more than all the testimony of the whole wide world. And now, to go a little further, I think the words of the hymn I have just quoted are *also* inspired. Read it over and over, and it will give you the best definition of the word "grace" that can be given.

Now, there is just one more old hymn, by Cowper, that I used to hear sung in camp meeting more than 70 years ago. It contains this:

> E'er since by faith I saw the stream
> Thy flowing wounds supply,
> Redeeming love has been my theme,
> And shall be till I die.

I told you that some time back it was a great privilege to me, at the time when I took the anesthetic and also when I went up in a flying-machine, to feel the presence with me of the Holy Spirit, even the spirit of our Lord Jesus Christ; and when I got relief from my suffering, the few times when I woke up at night, and found my hand and arm were restored, it was a wonderful comfort to think it over, as I dropped to sleep again, and to praise the Lord for this sudden and wonderful deliverance from pain.

"HIGH COST OF LIVING."

I have made a "big discovery." Yes, *another* "big discovery," and just like the most of my "discoveries," perhaps it is not altogether new. Never mind, I will help the great, wide world once more, to "sit up and take notice." For months past I have been living on shredded wheat biscuits and milk. Both are made hot and the biscuits are well buttered, and a little salt added. Of course, I have some fruit and a baked apple or a little sauce. Occasionally I have an egg, or a little meat, but I don't seem to care much for the latter. On this comparatively cheap diet I am exceedingly well. When we arrived here at our Florida home I found Wesley had harvested some beautiful Cuban flint corn. It was planted when we dug the potatoes. When I saw those beautiful golden, yellow ears, smooth and polished by Nature's own hand, I said, "This 'golden grain' must surely be good enough to eat." We grow this Cuban flint just because it is so hard and flinty the corn fly in its larval or worm state can't bore into it very much. This feature makes it hard to grind in our little handmill. And now comes my "great discovery." You recall what I have said about Burbank's new popcorn. Well, I have been using quite a lot of popcorn with my milk and shredded wheat. Why not see if *Cuban flint* won't pop? It didn't, at least not much. But after it was well *parched* it ground very easily in the mill, and with hot milk, butter, and salt—I hope you will like it as well as I do. And now you who have taken Gleanings for years, I want you to think back and recall that long ago I got a book on hunting, and this hunting book said a little bag of "ground parched corn" would sustain a hunter on a long tramp better than any other article of food. In other words, a pound of it would give more strength and endurance for a long hard tramp than a pound of meat, or any other food. The Indians knew this before the time of Columbus.

Now for the climax. Dr. Kellogg (the "vegetarian" man) threw a bombshell into our ranks a few months ago by declaring that it takes close to 10 pounds of grain to make one pound of beef or other meat; and yet *a single pound* of that same grain is worth more for food than the pound of meat that cost so much. I referred the matter to Director Thorne of our Ohio Experiment Station, and he admitted that it really did take about 10 pounds of grain to produce a pound of meat. The latter part of Kellogg's statement you can all settle for yourselves.

You can "parch" *wheat*, as well as corn, and when ground in a mill it is just as good as the shredded-wheat biscuits and costs much less. My good son-in-law, J. T. Calvert (by the way, he deserves more credit for the success of the A. I. Root Co. than he has ever received), who was on the "shredded-wheat" diet years before I took it up, recently said that the package that costs 15c, almost all over the world, contains only 3 cents' worth of wheat. Even if this be true, it is a great boon to humanity, for you can buy it almost all over the world.

Now the great moral to this long story is to "get busy" parching your corn and wheat in a dripping pan in the oven, and then grind it in your own home. Make a "short cut between producer and consumer." A coffee mill will do; and one to be run by electricity is the thing, especially when you get the electricity from a windmill, as your old friend A. I. Root does.

By the way, that windmill and the electric automobile are working together like brothers, and doing their job *beautifully*.

SOME OF OUR "HAPPY SURPRISES" ON REACHING OUR FLORIDA WINTER HOME.

House was found cleaned in very good shape. No mud-wasp nests. No roaches—not a one. No flies. No mosquitoes until last night and then only one. Not a rat on the premises so far. No hot weather. No dust anywhere and no mud. Auto looks as fine as when we bought it. Corn, peas, lettuce, and onions up in garden and growing fine. Potatoes *almost up*. Whole house lighted by windmill.

TAKING A TRIP IN A FLYING-MACHINE.

In our October issue I told you about my flight of seven or eight minutes, and I also said I hesitated for fear I might be setting a bad example, and thereby induce others to take a trip and possibly lose their lives in so doing. Well, the two young men who had charge of the machine assured the crowd there was almost no risk—that they had made, if I remember correctly, something like 12,000 trips without an accident. I had reason, however, to think the above was more or less an exaggeration; and I noticed, too, that every passenger carried was obliged to sign a paper releasing the managers from all responsibility in case of accident. Well, now comes the sad wind-up. The very man or boy, I should call him, for whom I signed the paper lost his own life, and that of the passenger, only a few days afterward. It seems they made the flight successfully, and were comparatively near the ground, when something happened to the machine, just what nobody can at the present time tell, if I am correct about it. But the whole thing came crashing to the ground. The gasoline took fire, and the two occupants were charred corpses before any help could reach them. We are told they were both killed by the accident before the machine took fire. I believe there is a movement on foot just now to make the entire machine of something non-combustible. As flying-machines go thru the evolution that they must go thru with, like automobiles, railway cars, etc., it is likely the liability to such accidents will be largely done away with.

MOTH MILLER; NONE TO BOTHER BEES IN NORTH COLORADO.

Dear Mr. Root:—With this I send you a message from the foothills. It represents Colorado sunshine and flowers. I think the honey I produce here is of a finer quality than that produced in the valley, tho the field is limited and would not sustain many colonies without overstocking. In the early spring the bees build up and store surplus from wild flowers. Later, our main source of honey is alfalfa and sweet clover.

Mr. Root, at one of our little beekeepers' conventions in Bradentown I was asked to tell something about beekeeping in Colorado. Among other things I mentioned the fact that there are no wax moths here in north Colorado. You expressed surprise and seemed almost to question my statement. I do not know why they will not live here, nor do I know the extent of the area where they are not found. It would be interesting to bring the subject up in some western convention and endeavor to gain some light on the matter. Very truly yours,

A. E. AULT.

La Porte, Colo., Oct. 15, 1919.

Friend A., I take it from the above that the moth miller has not yet reached your locality; and the thing to do is to take great pains, in buying bees from a distance, to see that it does not get started with you. While it is a comparatively easy matter to keep free of it, "prevention" is *very much* better than "cure."

ELECTRIC LIGHTS IN THE HEN HOUSE.

Dear Mr. Root:—I have been reading your Home Department in Gleanings for over 30 years. I want to tell you something about electric lights in hen-houses. The person that originated the scheme lives here in Arlington. He uses also electric incubators and brooders. Now the secret of this light system is as follows: The grain is scattered in the straw in the house so that the hens have to scratch for it. The switch to turn on the lights is fixed to an alarm clock set to go off at 3:30 in the morning, which wakes up the hens and they lay fresh eggs for breakfast. The light in the evening did not work well, as it made the hens warm and liable to catch cold. Besides it was difficult to get them on the roost again. The morning light gets them out early and warms them in the coldest part of the day, and the alarm clock wakes them up, without anybody having to get up and turn on the switch.

CHAS. F. KINZIE.

Arlington, Calif., Nov. 17, 1919.

INTENSIVE FARMING.

They used to have a farming rule
Of forty acres and a mule.

Results were won by later men
With forty square feet and a hen.

And nowadays success we see
With forty inches and a bee.

—Wasp.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Well-ripened clover honey in new 60-lb. cans. Geo. M. Sowarby, Cato, N. Y.

FOR SALE.—Heartsease honey in 60-lb. cans. O. R. Carr, Avon, Ills.

FOR SALE.—25 cases fine clover honey in new 60-lb. cans. Edw. A. Winkler, Joliet, Ills.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Raspberry-milkweed honey in new 60-lb. cans (2 in case).
P. W. Sowinski, Wharton, Ohio, R. D. 1.

FOR SALE.—Buckwheat honey, put up in 60-lb. cans, two per case.
H. B. Gable, Romulus, N. Y.

FOR SALE.—New crop clover honey, two 60-lb. cans to the case. Sample 20c.
W. B. Crane, McComb, Ohio.

FOR SALE.—Finest quality extracted white-clover honey, and buckwheat honey in new 60-lb. cans, two in a case. Chas. Sharp, Romulus, N. Y.

FOR SALE.—Choice Michigan white-clover honey in 5-lb. pails, 12 in case or 34 in barrel.
David Running, Filion, Mich.

FOR SALE.—Alfalfa honey, case of 12 5-lb. pails, at 28c per lb.; case of 6 10-lb. pails, 27c per lb. f. o. b. shipping point.
Walter Woodrow, Sun River, Mont.

FOR SALE.—Four tons choice clover honey, extra well ripened, packed in new 60-lb. tins, two in a case. Wish to sell in one lot.
Lee & Wallin, Brooksville, Ky.

Choice "Kentucky" clover extracted honey. Well-ripened, thick, and rich. Perfectly clean and suitable for table use. Packed in 60-lb. tins, two in a case, 25c f. o. b. H. C. Lee, Brooksville, Ky.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey, in 60-lb. cans, at 22½c per lb., f. o. b. Brooksville. Sample 25c.
W. B. Wallin, Brooksville, Ky.

FOR SALE.—New crop extracted buckwheat honey put up in 10-lb. pails, $2.25 per pail. Terms cash. Special price on 25 pails or more.
H. Hatton & Son, Andover, R. F. D. No. 3, Ohio.

FOR SALE. — Extracted honey, fine quality clover, 25c; clover and buckwheat mixed about half and half, 20c. Two 60-lb. cans to case, in 5-lb. pails, 3c a pound extra. Some buckwheat comb honey at $6.50 per case of 24 sections.
H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Raspberry honey slightly mixed with goldenrod. Was all left on hives until thoroly ripened. It is thick, rich, delicious, none better; put up in 60-lb. cans. Price, $15.00 per can. Sample by mail for 20c which may be applied on order for honey.
John Hutchinson, Lake City, Mich.

FOR SALE.—New orange-blossom honey in new 60-lb. tin cans, cased single, at 22c per pound.
Garrison H. Adams, Palmetto, Fla.

FOR SALE.—Our crop of honey is now ready for shipment. It is a good grade white clover with a very small trace of basswood, almost water-white. It is put up in new 60-lb. tin cans, two to the case. This honey was all produced by ourselves above queen-excluders in nice white combs. Then combs were provided so that no honey was taken off until after the season when it was thoroly cured by the bees. It costs more to raise a crop of honey this way, as we do not get as much per colony; so we have to have a little more money for this fancy article than the ordinary honey on the market. Try a small order and we feel sure you will buy no other. We can furnish at the following prices f. o. b. Northstar, one 60-lb. can $15.50. In cases of two cans $30.00 a case in any sized orders. The crop is short this year, and will not last long at these prices. We feel quite sure that the price will not be any lower; so do not be disappointed by not ordering early if you are looking for honey as good as money can buy.
D. R. Townsend, Northstar, Mich.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently, NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey; but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many, at only 25c per pound on car here at Northstar. Kindly address, with remittance.
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—To buy comb honey.
Edw. A. Winkler, Joliet, Ills.

WANTED.—Small lots of off-grade honey for baking purposes.
C. W. Finch, 1451 Ogden Ave., Chicago, Ills.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED. — Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—Comb and extracted honey. Send sample of extracted and quote your best wholesale price f. o. b. your station, how packed, etc., in first letter.
D. A. Davis, 216 Greenwood, Birmingham, Mich.

BEESWAX WANTED.—During January I will pay 42c per lb. cash for average yellow beeswax, delivered here. State quantity and quality and await reply before shipping.
E. S. Robinson, Mayville, N. Y.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax. E. B. Rosa, Monroe, Wisc.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WE BUY HONEY AND BEESWAX.—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to a case. Extracted honey, quantity, how packed, and send samples. Charles Israel Bros. Co., 486 Canal St., New York, N. Y.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 40c cash, 42c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival. The A. I. Root Co., Medina, Ohio.

FOR SALE

Root's Goods at Root's Prices.
A. W. Yates, 3 Chapman St., Hartford, Conn.

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—60-lb. cans, used once, 2 in case, 40c per case. Mason, Mechanic Falls, Me.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

STILES BEE SUPPLY COMPANY, Stillwater, Okla. We carry a full line of Root's Bee Supplies. Beeswax wanted. Free catalog.

FOR SALE. — 1,000 staple-spaced frames or metal-spaced frames at a bargain.
I. J. Stringham, Glen Cove, Nassau Co., N. Y.

Make your own foundation and earn money making it for others. The simple, easy way. Machine and outfit; hand, $1.00.00, electric power, $350.00. Grand Haven Pattern Works, Grand Haven, Mich.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition, at 50c per case. Buy them now for next season's honey crop.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—5,000 thick top-bar brood-frames in flat. In every way same as Hoffman, except are not self-spacing. 100, $5.00; 1,000, $42.00.
F. D. Bowers, Sugar Grove, Pa.

FOR SALE.—Comb foundation at prices lower than you had thought possible. Wax worked for cash or on shares. Satisfaction guaranteed.
E. S. Robinson, Mayville, N. Y.

FOR SALE.—200 Root standard 10-frame hive bodies, nailed and painted, including Hoffman frames, full sheets foundation, wired, electrically embedded, 100 bottom-boards, 100 galvanized covers. All well painted. Also 100 hives of bees.
Chas. Schilke, R. F. D. No. 2, Matawan, N. J.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. **Get the best. Catalog free.**

FOR SALE.—New honey cans. Two 5-gal cans in a cleated end case at $1.20 per case, f. o. b. your station. Direct from the factory.
Edw. A. Winkler, Joliet, Ills.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—One Cowan extractor 12½ x 16, in good condition, one new standard smoker, never been used, also one No. 3 Sharpless Separator, used five months, in excellent condition. Hiram Crossman, Vineland, R. D. No. 1, Box No. 64, N. J.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10-frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

Save your bees. If you can't get sugar to supply wintering colonies, or prefer to be certain of perfect feeding, quickly set in, or over your colonies, I will sell any part of 5,000 lbs. of comb honey in the frame (including frames in the weight) at 35c per pound f. o. b. Warrion, Ala. Also will sell supers and hives (shallow supers chiefly, a few Hoffman hives and a few Danzenbaker) at 25 per cent off Root's prices, to enable safe shipment of the combs. No disease in the apiary.
Mont Eyrie Orchards, Warrion, Ala.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. $1.50 per year. 15 cents per copy. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

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Fine location for beekeeper, 8 lots, good improvements, full basement, plenty of good fruit and shade trees, rich ground, chicken-fenced, $3,000. Selling on account of ill health. Write first.
C. Dellaidotti, Elkhorn, Nebr.

WANTS AND EXCHANGE

WANTED.—Small honey extractor. Give price and description. H. A. Cobbett, Morristown, N. J.

WANTED.—Two- or four-frame extractor. Hives. Bees. J. A. Kemp, Kempton, Ind.

FOR SALE OR EXCHANGE for honey, 20 colonies of bees; Cowan two-frame extractor, and 15 5-gallon cans, near Princeton, Ind., $100.00 or best offer.
W. C. Davenport, 2111 Noyes St., Evanston, Ills.

I want to get in touch with some reliable breeders and shippers of queens and package bees for direct shipment to Ontario beekeepers.
Edwin V. Tillson, Tillsonburg, Ont., Can.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED. — Used dovetailed hives, shallow bright-extracting combs, Hoffman frames, queen-excluders. V. S. Gray, Afton, Tenn.

WANTED.—To buy or work on shares 200 to 300 colonies. Employment proposition also considered. Harold A. Breisch, Ringtown, Pa.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

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Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens. No bees.
W. G. Lauver, Middletown, Pa.

Well-bred bees and queens. Hives and supplies.
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QUEENS ON APPROVAL.—Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

QUEENS ON APPROVAL. Bees by package or colony. Birdie M. Hartle, Reynoldsville, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

"She suits me" Italian queens, $1.15 each from May 15th to Oct. 15th: 10 or more, $1.00 each.
Allen Latham, Norwichton, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, $1.50; untested, $1.00.
J. W. Sherman, Valdosta, Ga.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

GOLDENS THAT ARE TRUE TO NAME. 1 selected untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.
Garden City Apiaries, San Jose, Calif.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

ITALIAN QUEENS OF WINDMERE will be ready in May, untested, $1.25 each; 6 for $7.00; tested, $2.00 each; selected tested, $2.50 each; breeders, $5.00 to $20.00. Satisfaction guaranteed. Now booking orders. Prof. W. A. Matheny, Ohio University, Athens, Ohio.

FOR SALE.—Italian queens from best, disease-resisting stock, mailed as soon as hatched. Improveed method for introducing with every order. Prices, April to October 1, 75c; 10, $6.00; 50, $25.00. Order now for spring delivery.
James McKee, Riverside, Calif.

FOR SALE.—Golden and three-banded queens untested, April, May, and June delivery, $1.25 each; $12.50 per doz. Satisfaction.
R. O. Cox, Greenville, R. D. No. 4, Ala.

We will ship 2-lb. packages and full colonies only this season. Three-banded Italian queens any quantity. Send for prices. J. A. Jones & Son, R. D. No. 1, Box No. 11-A, Montgomery, Ala.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

BEES BY THE POUND. — Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, $2.00; six, $7.50; doz. $14.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—Three-band Italian queens from best honey-gathering strain obtainable (no disease). Untested queens, $1.25 each; 6, $6.50; 12, $12.00; select untested, $1.50 each; 6, $9.00; 12, $18.00; tested, 2.50 each. Safe arrival and satisfaction guaranteed.
W. T. Perdue, Fort Deposit, R. D. No. 1, Ala.

THE BEES THAT PLEASE. Three-band leather-colored Italians, hustlers, none better, 2-lb. packages only. Untested queens, $1.25; 2-lb. packages, $4.75. Ready to ship about April 15. 25 per cent in advance, balance to be paid before bees are shipped. Write for circular.
J. M. Cutts, R. F. D. No. 1, Montgomery, Ala.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

RED CLOVER ITALIAN BEES and queens in two and three-pound packages for sale. My bees have taken first prize at the North Carolina State Fair. Our bees are giving wonderful results the entire U. S. A. over and Canada. We have shipped bees to nearly every State in the U. S. and have had wonderful success. We ship bees by parcel post mostly with the privilege of the cages returned to us. Our bees are wonderfully good honey-gatherers, and are beautiful queens, free from foul-brood disease of any kind. You will make no mistake in buying them. First come, first served. Deliveries, May and June, 1920. Write us your needs.
H. B. Murray, Liberty, No. Car.

MISCELLANEOUS

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

Guinea Pigs. Young stock, for sale, females $1.50; males $1.00. Pleasant Hill Caviary, 1629 E. Florida, St., Springfield, Mo.

Belgian Bucks; 3 heavy thorobreds of breeding age, price $3.00 each. Not registered.
Louis Bordua, Somers, Box No, 46, Conn.

TELL WHAT YOU KNOW! The Western Honey Bee offers cash and other prizes in a competition (ending March 1st) for articles pertaining to the work of beekeeping. Try your hand; any one can compete, whether a subscriber to the Honey Bee or not. Send for a sample copy (free) containing particulars. Address WESTERN HONEY BEE, 121 Temple St., Los Angeles, California.

HELP WANTED

WANTED. — Three queen-breeders and three practical beemen. Write
Northtropic Honey Co., Guatemala, C. A.

WANTED.—Man to work 250 hives of bees for comb honey; give experience, wages wanted, and reference. R. S. Becktell, Rifle, Colo.

WANTED.—Man to tend about 300 swarms of bees. Steady employment to the right party. State wages and experience. S. R. Stewart, Rifle, Colo.

WANTED.—Good man who knows the bee business. Permanent position.
Geo. E. Duis, Grand Forks, No. Dak.

Two or more men wanted to extract 30,000 pounds of honey this winter. Good power outfit. Will give one cent a pound for extracted to experienced help. G. Frank Pease, Haughton, La.

HELP WANTED.—Assistant to help in large bee business. Excellent chance for advancement to foreman with big wages to right party.
M. E. Ballard, Roxbury, N. Y.

WANTED.—Single man who knows all the kinks in the production of extracted honey, one who can raise queens successfully, and produce results. A good position and good wages for the right man for the season of 1920.
F. A. Young, Grand View, Idaho.

WANTED.—Willing man for assistant in bee and queen yards. Permanent place and good chance for advancement to the right man. State wages wanted in first letter.
Geo. A. Hummer & Sons, Prairie Point, Miss.

WANTED.—Two experienced bee men for the season of 1920. One queen-breeder with experience; one with experience in handling bees. State age, number of years' experience and wages. Also give reference.
W. J. Forehand & Sons, Ft. Deposit, Ala.

WANTED.—A competent and reliable, clean, single young man to run our apiary of 140 colonies for comb honey, cultivate 10 acres and do regular chores. A good thing for the right kind of a man. State age, experience, and terms of payment in first letter. May refer to The A. I. Root Co., Medina, Ohio. Mrs. Geo. E. Goodwin, Lyons, Mich.

WANTED.—Ambitious young man, 25, single, reliable, and clean, with some knowledge of beekeeping and supplies, desires to get with beekeeper for the season of 1920, either honey-producer or queen-breeder. Address, Albert F. Roorda, 10505 So. La Salle St., Chicago, Ill.

WANTED.—One experienced beeman. Must understand out-apiary work for comb and extracted honey and the handling of motor trucks. Write full particulars, experience, reference, age, and salary wanted in first letter. Can give permanent employment to the right man.
W. J. Stahmann, Clint, Texas.

SITUATIONS WANTED

Young married man, ex-soldier, experienced honey-producer, wants to take up work with some thoroly up-to-date and growing bee business. Best of qualifications and references. Expects to buy interest in business if satisfactory.
Closson Scott, 900 Parkman St., Warren, Ohio.

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Mistakes are expensive. The greater the experience, the fewer the mistakes. The A. I. Root Co. has been in business for 50 years, and this long experience prevents the mistakes often made by the new manufacturer of beekeepers' supplies—mistakes that the beekeepers indirectly have to pay for.

For 50 years our business has been that of manufacturing in large quantities high-grade beekeepers' supplies. Believing that the best are the cheapest in the long run, we have never made any other kind. There is no economy in buying an inaccurately made hive, nor one which will not hold its shape year after year whether it is left in one place or moved from one locality to another. Bees are worth more and sell for a higher price when in standard hives.

The Same Automatic Machinery in California

Much of the same automatic machinery that has made Root supplies famous the world over have been installed in California, thus insuring the same quality of workmanship in Root Goods on the Pacific coast.

In comb-foundation machinery alone no expense has been spared in putting in the biggest and best outfit that can be used for turning out the matchless quality of foundation for which the Root factories are noted. Moreover, an entirely new method of refining the wax and an entirely new design of the mill itself make possible a foundation never before equalled.

See the New Honey-extractor

The new extractor is a success and it is now being manufactured in quantities. Ask to have it demonstrated either at the factory, 1824 East 15th street, Los Angeles, or at the San Francisco branch, 52-54 Main street. Reversing at will without slowing down, and as many times as desired, is a great time saver. Buy the best and you buy the cheapest.

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BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.
If you have not received 1919 catalog, send name at once.

Thagard's Italian Queens
I am booking orders for April to October deliveries. My queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers. Untested queens, $1.50 each; $7.50 for six. I guarantee pure mating, safe arrival, and perfect satisfaction. Catalog free.
V. R. Thagard -:- Greenville, Alabama

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Bee Supplies in a Hurry!!
Beekeepers of Indiana, we carry a complete line of Root supplies at this branch, and we give all orders our prompt attention
The A. I. Root Company
873 Massachusetts Avenue Indianapolis, Indiana

Our Food Page—Continued from page 26.

and serve very hot. This amount will serve 12 or more people.

SCALLOPED CORN.

Canned corn
Oyster crackers
Butter
Milk
Salt
Pepper

Arrange alternate layers of crushed crackers and canned corn in an oiled baker, dotting each layer with bits of butter, season to taste, pour in milk until you can see it, and bake in a moderate oven until lightly browned. The top layer should be of cracker crumbs.

ORANGE SHERBET.

5 lemons
5 oranges
4½ cups sugar
2½ quarts milk

Mix the juice of the oranges and lemons, the grated rind of one of each, and the sugar, and let stand several hours or over night. Put the sugar and juice thus prepared into the freezer and chill, then add the milk which should be cold, and freeze as usual. A little cream instead of all milk makes a richer and smoother sherbet, but it is very good without. If the lemons and oranges are very large and sour, a little more sugar may be added. This amount makes about a gallon.

RASPBERRY SHERBET.

6 lemons
1 pint can raspberries
3½ or 4 cups sugar or honey
2½ quarts water
1 egg white well beaten

Mix the juice of the lemons, the grated

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MEDINA, OHIO

Reduced Prices on Comb Foundation

In spite of the fact that I am paying higher prices than ever before for beeswax, I have decided on a reduction in prices of comb foundation. I now offer 50-lb. lots at the following prices. Smaller quantities are slightly higher.

Medium brood, 72c per lb. Light brood, 75c per lb. Thin super, 82c per lb.

GUARANTEE: I guarantee my foundation to be made of clean pure beeswax, with perfect impression, cut exact size ordered, and packed so as to reach you in good order. Your own wax worked into foundation at lowest rates, for cash or on shares. Send for complete price list.

BEESWAX WANTED. During January I will pay for average yellow wax, delivered here, 42c per lb. State quantity and quality, and await reply before shipping.

E. S. Robinson -:- Mayville, Chautauqua Co., New York

rind of one, the raspberries rubbed thru a sieve, and the water, and let stand several hours to dissolve the sugar. Put in freezer and when it begins to freeze add the stiffly beaten egg white. Honey is very good instead of sugar in this recipe. Any other canned fruit may be substituted for the raspberries. Cranberries, stewed and strained, make a delicious sherbet by this recipe. This also makes a gallon.

SWEET CLOVER 6.40 BU.
Greatest Money Making Crop. Big Money for the grower. Builds up land rapidly and produces heavy money making crops while doing it. Excellent pasture and hay. Easy to start. Grows in all soils. White Blossom unhulled Our scarified, highly germinating tested Seed is the best Write today for big Seed Guide and FREE Samples·
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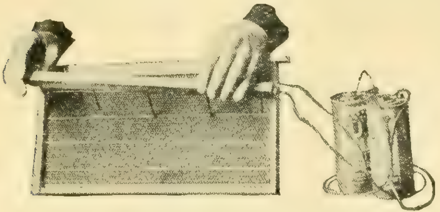
SIOUX CITY, IOWA

BEES MAKE HONEY
HONEY MAKES MONEY
but only when proper equipment is correctly used.
"LEWIS"
BEE SUPPLIES
are accurately constructed and are right in quality and price.

Central West Beekeepers
NOW
is the time to order your supplies. Spring will soon be here, so—
DON'T WAIT
one minute longer. Order your goods now or tell us what you need. We can take care of you with the famous ROOT service. Please remember the announcement of our change of name from The Kretchmer Manufacturing Company to the A. I. Root Company of Iowa. The beekeepers of the Middle West will have our best service.
The A. I. Root Co. of Iowa **Council Bluffs, Iowa**

Electric Imbedder



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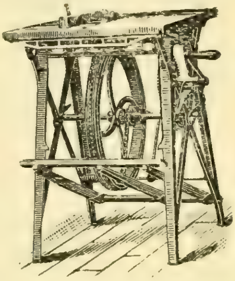

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Machines on Trial

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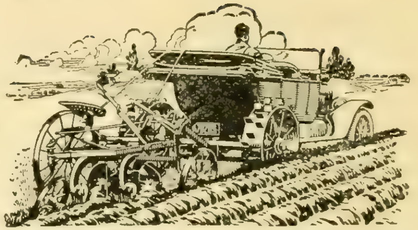


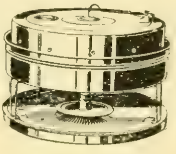
Make a Tractor of Your Car

Use it for farm work. Pullford catalog shows how to make a practical tractor out of Ford and other cars.

Write for Catalog

Pullford Co., Box 23 C Quincy, Ill.

CYCLE HATCHERS



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Chas. J. Williamson, McLachlan Building,
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Beekeepers' Supplies

Catalog on Request

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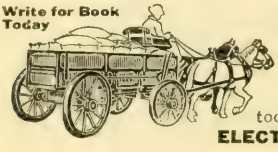

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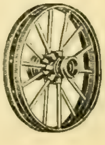

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If you plant seeds of our fall or everbearing strawberries in January or February, you can pick ripe berries in August of same year, or as quickly as tomatoes grow from seeds. Send for packet of strawberry seeds today. Price 25c a packet, 5 packets $1 00. "Farmer on the Strawberry," the latest and most up-to-date book on strawberry culture, over 100 pages, 1920 edition, price 50c, 5 copies $2.00. Cloth bound copies $1.00 each. We are headquarters for Strawberry and all other Small Fruit Plants. Beautifully illustrated catalog free. Address

L. J. FARMER, Box 8, Pulaski, N.Y.

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 183

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.,
133-183 Pike St., Cincinnati, O.

FREE Samples & Roofing Book

CONDON'S GIANT EVERBEARING TOMATO

"QUEEN OF THE MARKET." Big Money-Maker. Large, solid fruit; excellent canner. To introduce to you our Northern Grown "Sure Crop" Live Seeds, we will mail you 125 seeds of **Condon's Giant Everbearing Tomato** and our Mammoth 1920 Garden and Farm Guide. Tells how, when and what to plant for pleasure and profit. **Send postal today.** FREE

CONDON BROS., Seedsmen
Rock River Valley Seed Farm
Box 88 ROCKFORD, ILLINOIS

BETTER SEEDS NEW BEANS

Pheasant Eye Beans, stringless, delicious. New Hot Squash Peppers. New Narrow Grain Sugar Corn. Carrots Sweet Enough for Pies. Also RedSkin Dent Corn—Famous Yielder—Ready to cut in **70 Days** or less, and many other New and Standard varieties in Free Catalog No. 39. Write for it now,

J. A. & B. Lincoln, ***Seed Growers***
39 So. La Salle Street Chicago, Illinois

Hill's Evergreens Grow

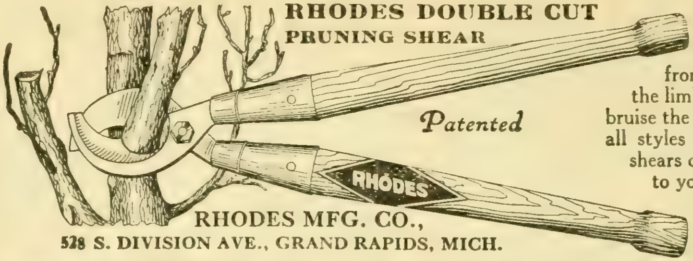
All hardy stock—twice transplanted—root pruned. Protect buildings, stock, crops. Hill's Evergreen Book, illustrated in colors, Free. Write today.

The D. Hill Nursery Co., Inc., Box 2463
Dundee, Ill. *Evergreen Specialists*

GRASS SEED
FREE SAMPLES Wonderful Value Wholesale Prices Highest Quality

Don't fail to investigate these bargains. Recleaned Tested Timothy **$5.60** bu. Sweet Clover **$6.40** bu. Alsike Clover and Timothy **$8.10.** bu. Sudan Grass **15c** lb. Clover and other Grass & Field Seeds at low prices. All sold subject to State or Goverment Test under an absolute **money-back guarantee.** We are specialists in grass and field seeds. Located so as to save you money and give quick service. Send today for our money-saving Seed Guide which explains all, **free.** We expect higher prices--Buy now and save big money.

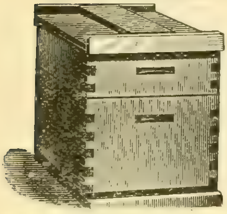
American Mutual Seed Co. Dept. 651 **Chicago, Ill.**



RHODES DOUBLE CUT PRUNING SHEAR

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.



Early-order Discounts will

Pay You to Buy Bee Supplies Now

Thirty-two years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri.

"Falcon"

We Have on Hand a Quantity of

Sections Slightly Shopworn

but otherwise good for all practical purposes, which we offer at the following low prices:

50,000 No. 2 4½ x 1½ Plain, at	$7.50
50,000 No. 2 3⅝ x 1½ Plain, at	7.50
50,000 No. 2 4 x 5 x 1⅜ Plain, at	7.50
25,000 No. 2 4¼ x 1¾ 2-beeway, at	8.00
25,000 No. 2 4¼ x 1¾ Plain, at	7.50
20,000 No. 1 4 1/3 x 1¾ 4-beeway, at	8.00
10,000 No. 1 4¼ x 1 15/16 4-beeway, at	8.00

Sold in lots of not less than 5 M. subject to prior sale. Take advantage of these extremely low prices and send us your order today.

Write for catalogue and price list of Falcon Bee Supplies.

W. T. Falconer Manufacturing Co. Falconer, New York

"where the best beehives come from."

"Falcon"

HAPPY NEW YEAR TO YOU ALL, AND MANY

Thanks for the Splendid Support

WE HAVE RECEIVED FROM YOU DURING THE SEASON JUST CLOSED

Now let's look over 1920; indications are that sugar will be higher in price, honey's most extensive competitor. So we are safe in working for a big crop of honey for 1920; and with this end in view, we are organizing an advertising compaign to create a larger demand for honey, and in this way we have been able to handle all the honey offered us at the highest market prices.

We will continue to carry a complete line of standard Lewis Beeware with its proven merits and Dadant's Foundation, which has stood the test of two generations and no radical changes needed. We can render your old combs and cappings at Newark and exchange your wax for foundation or supplies. If you have honey to offer, we will be glad to quote you; our 1920 Bee Supply Catalog free. Your's for for successful beekeeping.

Liberty Bonds accepted as cash.

The Deroy Taylor Co., -:- Newark, Wayne Co., New York

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

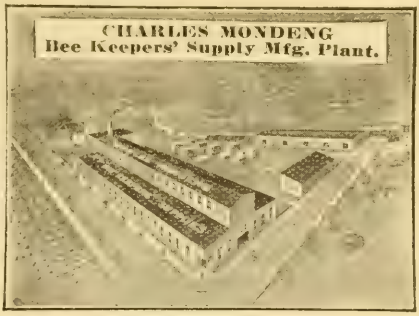
Carl F. Buck

The Comb-foundation Specialist

Augusta, Kansas

Established 1899

$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once, 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains Send for a new price list. I can save you money.

Will take Beeswax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

BEEKEEPER'S SUPPLIES

Every Thing Required for Practical Beekeeping

Order your supplies NOW and save money by taking advantage of the early order cash discounts. We are well prepared to take care of your business; send us your inquiries and we will be pleased to quote you our prices.
Send us your name and address and we will mail you one of our new 1920 catalogues when ready.

AUGUST LOTZ COMPANY . . BOYD, WISCONSIN

The Townsend Tar Paper Method of Packing

This method of packing for outdoor wintering has given such excellent results that it is now used exclusively by E. D. Townsend & Sons, Northstar, Mich., on their entire 1,100 colonies. This is not a mere paper wrapping, as packing material is used at sides as well as top. How it is done is fully described (with illustrations) by Mr. Townsend in the November number of the Domestic Beekeeper. This issue also contains an excellent article on wintering by Mr. Jay Smith, well known queen-breeder and Government extension lecturer. You will want to read both of these articles—and we want you to do so. *Here is our special offer*: Send us $1.00 and we will mail you this November number of the Beekeeper and continue your subscription to the end of December, 1920—14 months for $1.00. Do this today and our word for it, you will not regret it. (Add 15c extra for Canada postage; 25c for foreign.) Address

The Domestic Beekeeper -:- -:- -:- -:- Almont, Michigan

MR. BEEKEEPER

We wish you a Happy and Prosperous
New Year—and

ROOT'S GOODS

THE ONE MEANS MUCH
THE SAME AS THE OTHER

As general agents in Michigan, we can give you better and cheaper service. Beeswax wanted. Send in your name and address so that you will receive the 1920 catalog as soon as issued.

¶

M. H. HUNT & SON
510 NORTH CEDAR ST.
LANSING, MICH.

Start the New Year Right

Resolve to
send in your order now

We are all stocked up with everything you need and can ship promptly.

Don't wait until you need the goods and the rush season commences

Veils

Are

Smokers

You

Tools

Going

Hives

to

Supers

Syracuse

Sections

for

Foundation

Supplies?

Extractors

Order now and you will be in better shape for the honey season.

We can serve you with promptness and accuracy.

Try us.
You will come again.

F. A. Salisbury, 1631 W. Genesee St., Syracuse, N. Y.

Bees, Queens, Beekeepers' Supplies

PROMPT SERVICE
FAIR DEALING

-:-

The Stover Apiaries

Mayhew, Mississippi

QUEENS Bees by the Pound *QUEENS*

Booking orders now with one-fourth down, balance just before shipping. Two per cent discount on January orders with full remittance. We have for several seasons shipped thousands of pounds of bees all over the United States and Canada.

From Wisconsin: "Last year when my old-time beekeeping friends heard that I had bought bees from a man in Texas they called me a fool; but now I have more bees and more honey than any man in Green county. It is the talk of this part of the woods." (Same party has in his order again for over a thousand dollars' worth for spring shipping.)

From West Virginia: "The State Apiarist pronounced my queen one of the finest queens he ever saw. To say I am well pleased would be to put it mildly. Will want more bees and queens in the spring."

Guarantee shipment to be made on time. **Free** circular explains, also gives prices on bees by Parcel Post, Nuclei, etc.

Prices f. o. b. Here, by Express.

1-lb. pkg. bees,	$2.40; 25 or more...	$2.16
2-lb. pkg. bees,	4.25; 25 or more...	3.83
3-lb. pkg. bees,	6.25; 25 or more...	5.62

Queens.

Untested,	$1.50 each; 25 or more....	$1.35
Tested,	$2.50 each; 25 or more......	2.25
Select tested,	each.................	3.00

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALALLEN, TEXAS

E. B. AULT, Prop.

INSURANCE AGAINST LOSS

NOT A TWENTY-YEAR, BUT A ONE-YEAR POLICY

If, on a cold blustery winter day, an insurance agent should walk into your office and say that he would like to insure your bees against loss in the spring, wouldn't you be interested? But if he should say that for about 80 cents he would insure each colony for about 25 years, wouldn't you be greatly interested? That would be only about 3½c per year on $20.00, or a little over 1½ mills per dollar. This is practically what the Forehand Feeder does.

The Forehand Feeder is the insurance we are offering you. It is not only an insurance but a wise investment—one that will pay big interest on the feed that it saves, the time it saves and the trouble and labor it avoids. It will last you at least 25 years. It will not only help you with your spring problems but all the year round. Let us tell you about the Forehand Feeder as an insurance and profitable investment.

The Forehand Feeder is not a twenty-year policy. It pays big profits the first year. It is a one-year policy. You can cash in on it the first day. Write us at once for the "Forehand Feeder Insurance Policy." It explains fully about our feeder.

Bee Supplies

We shall be very glad to send you our catalog listing a complete line of supplies. Our line of bee supplies are of the best material, workmanship, and quality. We offer you good service, prompt and fair dealings. We can save you money. Get in your order now before the rush. Write at once for our supply catalog.

Queens and Bees

You will want your queens and bees early in the spring. Will you be too late to get your order in? We are booking orders fast for spring delivery. It doesn't pay to wait; get in your order *now*. Forehand's Three Bands need no recommendation. For over a quarter of a century they have been pleasing the best beekeepers thruout the world. They are the kind that are *surpassed by none but superior to many*. They are thrifty, hardy, gentle, and beautiful. Write at once for our special Queen and Bee circular, giving full description and prices of our queens and bees.

Twenty-seven years of beekeeping enables us to give you goods of the finest quality—the kind that have proved this. Our long experience has taught us to offer only the best goods and best service to our customers.

W. J. Forehand & Sons "The Bee Men" **Ft. Deposit, Ala.**

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping-boxes, and three-frame nucleus colonies.

I. J. STRINGHAM, GLEN COVE,
Nassau Co., N. Y.

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

SWEET CLOVER

Buy your Seed direct at wholesale prices. All kinds. Let us save you money on your Sweet Clover Seed. Write for wholesale prices and samples today. Get our big 1920 Seed Catalog Free.

DAVE PECK SEED CO.
3112 Pa. Ave. Evansville, Ind.

TRADE NOTES

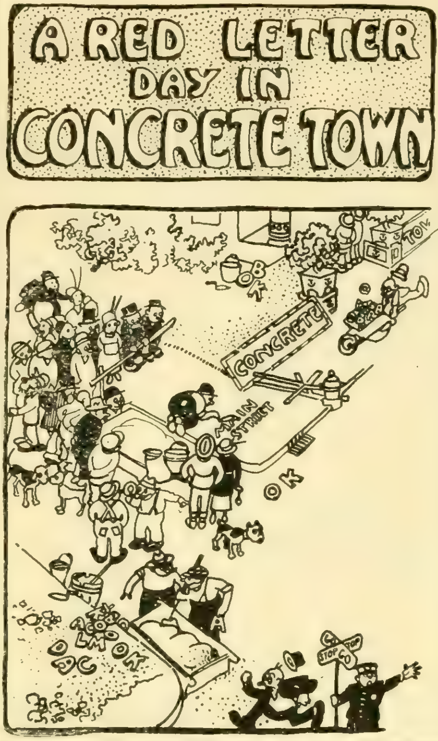
We have a limited amount of 7 per cent cumulative preferred stock of this company for sale at par and accrued dividend. If interested, please address The A. I. Root Company of Iowa, Council Bluffs, A. H. Dunn, Sec'y.

FINAL ANNOUNCEMENT AS TO SECURING BACK NUMBERS AND VOLUMES OF GLEANINGS

So many have taken advantage of the advertised opportunity to complete their back volumes of Gleanings, that our stock of old Gleanings is much reduced. But we can still furnish complete in single copies, at 50c a year, the following years: 1873, 1874, 1876, 1888, 1890 to 1899 inclusive, 1901, 1904, 1905, 1907, 1909, and 1910. All other years lack some numbers. In bound volumes, we can furnish all years except 1875, 1878, 1902, and 1903, at $1.50 per bound volume. While chance remains, take advantage of the opportunity to get the best and lowest-priced beekeeping literature that can be bought. You don't have to buy complete years. Send a dollar (or more), and tell us to send you as many copies of back Gleanings as the sum will pay for, designating about what years you would prefer (remembering none of 1916-1919 are now left). Address Gleanings in Bee Culture, Medina, Ohio.

Advertisements Received too late to Classify.

WANTED.—One experienced man and students, as helpers with our 1,000 colonies. Best opportunity to learn the business from A to Z, in the actual production of carloads of honey. Theory also. Write immediately, giving age, height, weight, habits, former employment, experience, references, wages, photo, all in first letter. E. F. Atwater (former Special Field Agent in Beekeeping, U. S. Dept. Agr. for Calif., Ariz., and New Mexico), Meridian, Idaho.



That Sign for Your Apiary

SHOULD BE MADE
THIS WINTER!

We will mail you on application a small folder on how to make your own signs by using our all-weather-proof burned clay letters. They can be used on buildings, walks, lawns or roadside.

Write for a "Red Letter Day in Concrete Town"

UNITILE
REGISTERED TRADE MARK

The Unitile Co., Columbus, Ohio
Dept. B

Our Specialties

White Pine	Dovetailed Hives Dovetailed Supers Hoffman Frames	Basswood	Sections Section Holders Separators Shipping Cases

Complete Stock — Foundations, Smokers, Extractors, Honey, Cans, Bottles and also Everything needed in the Apiary

Let us show you how to save money on your Bee Supply Orders;
Quality, Price, Satisfactory Dealing Always

We have been in this business over 18 years in the same place.
Write today for special January Price List; costs you nothing,
but may save you considerable money.

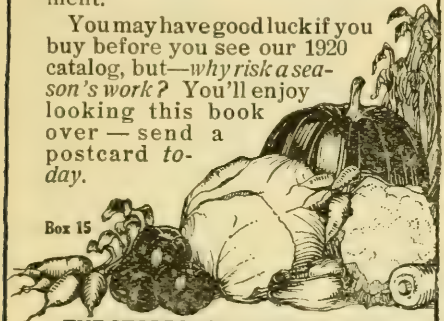
P. J. Doll Bee Supply Co.

Nicollet Island Minneapolis, Minn.

Good judgment brings good crops

Experienced farmers depend as little as possible upon *luck*. Rewards follow effort based on good judgment—and a heavy crop is a mighty fine reward. Storrs and Harrison sturdy-growth trees, seeds and plants represent 66 years' conscientious work in skillful breeding and careful selection. On our 1200-acre grounds the type and vigor of all strains are proven—many originate there. Plant S. & H. varieties—it's good judgment.

You may have good luck if you buy before you see our 1920 catalog, but—*why risk a season's work?* You'll enjoy looking this book over — send a postcard *today*.



Box 15

THE STORRS AND HARRISON CO.
Nurserymen and Seedsmen, Painesville, Ohio

Grow Trees That Bear

Trees from the Woodlawn Nurseries are vigorous growers and bred-to-bear. • Our 44 years of successful growing experience has been devoted to the production of thrifty strong-rooted stock. We have the exclusive sale of the wonderful new Ohio Beauty Apple.

New Ohio Beauty Apple

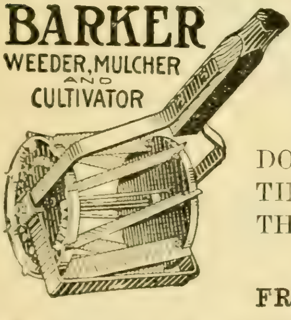
The same time-proven dependability makes Woodlawn grown shrubs, flowering bushes and perennials safe investments. The moderate prices bring an individual and attractive garden within the most moderate means.

Our illustrated 1920 Nursery List contains valuable planting and growing information as well as a catalog of select nursery stock. Mailed on request.

Our vegetable and flower-garden seeds make thrifty, beautiful gardens

WOODLAWN NURSERIES

882 Garson Ave. Rochester, N. Y.



Weeds and Mulches

In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER MANUFACTURING CO.
Dept. 10 David City, Nebraska

BARKER
MFG. CO.
Dept. 10
DAVID CITY, NEB.

Gentlemen. — Send me postpaid your free book and Factory-to-User Offer.

Name ____________________

State Town R. R. No. Box

Don't Send a Penny

The shoes offered here are such wonderful values that we gladly send them, **no money down.** You will find them so well made and so stylish and such big money-saving bargains that you will surely keep them. So don't hesitate—just fill out and mail the coupon and we will send you a pair of your size. No need for you to pay higher prices when you can buy direct from us—and no need sending money in advance before receiving the shoes. Why pay out $6, $8 or more for shoes not nearly so good? Act now. Mail the coupon today while this special offer holds good. Pay only when shoes arrive. And your money back if you want it.

Great Work Shoe Offer

We can't tell you enough about these shoes here. This shoe is built to meet the demand for an outdoor city workers' shoe and for the modern farmer. Send and see for yourself. Built on stylish lace Blucher last. The special tanning process makes the leather proof against acids in milk, manure, soil, gasoline, etc. They outwear three ordinary pair of shoes. Most comfortable work shoe ever made. Very soft and easy on the feet. Made by a special process which leaves all the "life" in the leather and gives it wonderful wear-resisting quality. Double soles and heels. Dirt and waterproof tongue. Heavy chrome leather tops. Just slip them on and see if they are not the most comfortable, most wonderful wearing work shoes you ever wore.

Pay only **$4.17** for shoes on arrival. If after examination you don't find them all you expect, send them back and we will refund your money.

Get This Remarkable Bargain

To order these shoes mark X in the □ by No. A18025 in coupon. Be sure to give size and width when ordering.

Send No Money With Order

Stylish Dress Shoe

Special bargain to close out a limited stock of these smart Dress Shoes. Act quickly if you want a pair. Made in classy lace Blucher style. Splendid quality calf uppers. Splendid solid leather soles and heels. Come in black only. At our price these shoes challenge all competition. Make your own decision after you examine and try them on. Sent absolutely on approval. You must see them to appreciate the fine quality of material, workmanship and astonishing bargain value. No money with order. Be sure to give size when ordering.

Pay only **$4.69** for shoes on arrival. And that returned if you don't keep the shoes. Send today because a price like this soon sells the stock.

Mark X in □ by No. A15105 in coupon. Be sure to give size wanted.

Send Coupon

Keep your money until shoes come. Not a cent to pay now. Sent direct to your home on approval. Then let the shoes themselves convince you of their bargain value or return them and get your money back. This is the modern, sensible way to buy—the way thousands are buying their shoes today direct from us—getting satisfaction—saving money. Fill out the coupon and send it now.

Leonard-Morton & Co.
Dept. 2747 Chicago

Leonard-Morton & Co., Dept. 2747 Chicago

Send at once the shoes which I have marked X in □ below. I will pay price for shoes on arrival with the understanding that if I do not want to keep them I can send them back and you will refund my money.

☐ Work Shoes No. A18025 $4.17 ☐ Dress Shoes No. A15105 $4.69

Size..

Name..

Address.......................................

EVERY BEEKEEPER NEEDS IT

Success in beekeeping is in direct proportion to the beekeeper's knowledge and information regarding bees and their care. There is no real success without such knowledge. Knowledge is power because knowledge brings success.

There is a book published for beekeepers that has no parallel in any other industry as the one recognized guide and teacher in such industry. This book is

A B C and X Y Z

of Bee Culture

A B C
X Y Z
BEE
CULTURE

It is the largest and most complete work on bees in the world, making an illustrated encyclopedia of more than 850 pages, arranged alphabetically, and treating every beekeeping subject exhaustively but simply. Each subject is treated as an entirety in itself, but cross references enable the reader to get every related fact and discussion.

While the book was written primarily by A. I. Root for the benefit of beginners, and while it is still a work for those who are beginning in bees, it is so comprehensive that veterans find it useful and almost indispensable in their business. Many of the best beekeepers in the country own a copy of every edition. Not only is every subject thoroly treated, but practically all the best-known methods are given.

A Second New Edition

Only last July (1919) a new edition of the A B C and X Y Z of Bee Culture to the number of 15,000 was brought out, the next previous edition appearing only two years before, in 1917. Yet, so valuable and popular is this book, that a second printing of the 1919 edition is now under way, the 1919 output having already been practically sold out. This 1919 edition contains one very important revision—that on the subject of foul brood. The results of the latest investigations and the latest conclusions of experts studying brood diseases will be found in this edition.

The price of this valuable volume is $2.50. Clubbed with "Gleanings in Bee Culture," the monthly magazine edited by A. I. Root, E. R. Root, and H. H. Root, the price is $3.25. A B C and X Y Z of Bee Culture is for sale by all dealers in beekeepers' supplies everywhere.

THE A. I. ROOT COMPANY, MEDINA, O.

Think of Any 10 People!

Of course they are all different.

That's "Individuality."

Think of any 10 makes of bee hives!

If they are different, what does it mean?

"Individuality."

Good beehives are much like good people.

You know they are good for the same reasons.

Quality, appearance, stability, and the certainty to "pay out" on your investment---the features of good people---are found only in Lewis "Beeware."

That's why better beekeepers everywhere have learned to look for this trademark on their supplies.

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. U.S.A.
MAKES THE FINEST.

The 1920 "Beeware" catalog goes out this month.
It's jammed full of good things for beekeepers.
Be sure and get one. Write us if you do not.

WE WISH YOU ALL A HAPPY NEW YEAR

G. B. Lewis Company

Makers of Beeware

Branches and
Distributors Everywhere

Watertown, Wisconsin

Gleanings in Bee Culture

A Winter Home for Bees "Way Down East" in Maine

Vol. XLVIII February 1920 No. 2

WE ARE ALWAYS IN THE MARKET FOR

Honey and Beeswax

Do not sell until you have seen us. We will pay you spot cash for anything you sell us. Get our prices on cans and cases.

Los Angeles Honey Company -:- **Los Angeles, California**

633 Central Building, Sixth and Main Street

Telephones: Home 10419; Main 5606

MONEY FROM HONEY

A Postcard Will Bring Our Catalog

---:---

Write Dept. C

WESTERN HONEY PRODUCERS
SIOUX CITY, IOWA

BEES MAKE HONEY
HONEY MAKES MONEY

but only when proper equipment is correctly used.

"LEWIS"
BEE SUPPLIES

are accurately constructed and are right in quality and price.

Tin Containers

A Complete Line. Your Orders Solicited for

Friction-Top Cans and Pails

Five-gallon Square Cans
with Screw or Solder Cap

Packers' Cans
Open Top or Hole and Cap Styles

Wax Sealing Preserving Cans

Unexcelled manufacturing and shipping facilities.

W. W. Boyer & Co., Inc.
Baltimore, Maryland

"Griggs Saves You Freight"

TOLEDO

How about supplies for next season's use? Why not take advantage of the early order discounts!

Second-hand 60-lb. Cans

We have a carload or more in cases of two cans, good condition, at prices worth your attention.

Honey--Honey--Honey

We are in the market for large quantities of all kinds of white honey. Mail samples and state price asked in first letter.

"Griggs Saves You Freight"

GRIGGS BROTHERS CO.
Dept. No. 25 Toledo, Ohio

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The Fred W. Muth Company

The GOLDEN MONTHS of OPPORTUNITY

for the successful beekeeper are

FEBRUARY, MARCH, AND APRIL

This is the time of the year to nail and paint the supplies needed for your 1920 crop of honey.

In spite of transportation difficulties and delays we are in position to promise prompt deliveries from our complete stock of famous

LEWIS BEE-WARE

We Render Your Old Combs

and pay the market price for the wax rendered, less 5 cents per pound rendering charges.

WRITE US TODAY

Write for Our Catalog

If you do not receive our catalog each year write at once.

1920 Issue is Now Ready

Besides, your order now will save you money, as there is a tendency for prices to advance still higher.

We are dealers in

Root's Extractors and Smokers --- Dadant's Foundation and the Famous Lewis Beeware

HONEY

When You Have Honey for Sale

send us your sample and give best price delivered here. We buy every time you name an interesting price and remit the day shipment is received. SEND US YOUR OLD COMBS FOR RENDERING.

BEESWAX

If You Want Prompt Shipment, Give Us Your Order Today.

THE **FRED W. MUTH** CO.

"The Busy Bee Men"

CINCINNATI, OHIO

Superior Foundation

"BEST BY TEST"

The following is one of hundreds of similar testimonials that we have recently received:

Superior Honey Co., Newark, O., 81 Fairview Ave.
Ogden, Utah. Nov. 3, 1919.

Dear Sirs:—Your Superior Foundation gave splendid results. We tested it side by side with other makes and found it more than the equal of any of them. I take pleasure in recommending it to my beekeeping friends.

Respectfully. S. S. JORDAN

Order thru your dealer. If he cannot supply you write us direct for special prices.

Superior Honey Company -:- Ogden, Utah

(MANUFACTURERS OF WEED PROCESS FOUNDATION)

BEE SUPPLIES BEE SUPPLIES

SERVICE & QUALITY

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog—better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & COMPANY

2146 CENTRAL AVE. CINCINNATI, OHIO

HONEY MARKETS

The honey market has changed but little during the last month. As usual at this time of year, the retail demand is generally light. The high price of sugar has not had the expected result of making a lively retail honey trade in what is always a dull season. Carlots are offered to large dealers at as low a figure as a month ago, and the dullness in the retail trade is not making the big buyers eager. Export demand has somewhat increased during the last 30 days.

U. S. Government Market Reports.

HONEY ARRIVALS, JAN. 1-15.

MEDINA, O.—4,507 pounds from Minnesota, 55,900 pounds from Wyoming, 225 pounds from Pennsylvania.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS, JAN. 1-14.

CHICAGO.—1 car California, 2 cars Colorado, and 1 car Arizona arrived. Supplies moderate, demand and movement moderate, market steady. Sales to jobbers, per lb., extracted: Californias, Colorados, Idahos, and Arizonas, white alfalfa and clover 20-20½; light amber alfalfa 18-19c. Comb, 24-section cases, best No. 1, $7.00-7.25; poorer $6.00 up. Beeswax, receipts and supplies moderate, demand and movement moderate, market steady. Sales to jobbers, Californias, Colorados, and Idahos, light 46-48c; dark 40-42c per lb.

CLEVELAND.—Demand and movement good, market steady. Sales to jobbers, extracted, 60-lb. tins dark amber and white clover 22-25c per lb.

PHILADELPHIA.—1 California and approximately 1,000 pounds from New York arrived. Demand and movement moderate, market steady. Extracted, sales to jobbers, Floridas, fancy light amber 20½-21c per lb., West Indian light amber $1.67 per gallon. Purchases by local wholesalers f. o. b. Philadelphia, California white orange 21½c. New York white clover 18½c per lb.

BOSTON.—Supplies light, market dull, demand slow. Sales by jobbers to grocers in small lots, comb, New York and Vermont, mostly good quality, some light sections, best 33-37c per section; few light sections low as 30c. Extracted and beeswax, no sales reported.

CINCINNATI.—2 cars California arrived. Sales to jobbers, comb, Western 24-section cases fancy, light $7.50. Extracted, no sales reported. Beeswax, supplies light, demand good, market steady. Sales to jobbers, average yellow 46-48c per lb.

KANSAS CITY.—No arrivals reported. Demand and movement moderate, market steady. Sales to jobbers, comb, Missouris, light amber $7.50-8.50 per 24-section flat case. Extracted, Californias, medium color 22-23c per lb.

MINNEAPOLIS.—Supplies liberal, demand and movement good, market steady. Sales direct to retailers, comb, Western, fancy light, 24-section cases $7.50-7.75. Extracted, Western, in 60-lb. cans 21-22c per lb.

NEW YORK.—1 unknown arrived, incomplete. Supplies moderate, demand and movement fairly active, market firm. Sales to jobbers, extracted, per lb. California, white sage and orange 22-23c; light amber alfalfa 19-20c. Mexican light amber Shasta 19c; light amber alfalfa and clover 19¾c. Porto Rican and Cuban, per gallon $1.60-1.70. Beeswax, no arrivals reported, supplies moderate, demand and movement moderate, market steady. Sales to jobbers, light 43-44c; dark 42-43c per lb.

ST. LOUIS.—Supplies light, demand and movement slow, market steady. Sales to jobbers, extracted, per lb., Southern amber in cans 15-16c; in barrels 14-15c. Comb, practically no supplies on market, no sales reported.

St. Paul.—Supplies liberal, demand and movement moderate, market steady. Sales direct to retailers, comb, Western, fancy light, 24-section cases, $7.50 per case. Extracted, too few sales to establish market.

HONEY EXPORTS FROM THE UNITED STATES, DEC. 1-15, 1919.

Total, 302,733 pounds; to Belgium, 70,008; to France, 8,970; to Germany, 51,000; to Netherlands, 122,000; to Norway, 17,400; to Spain, 16,969; to Canada, 8,701; to Newfoundland and Labrador, 2,538; to British India, 4,060; to all other countries, 1,352 pounds.

George Livingston,
Acting Chief of Bureau.

Quotations From Producers.

The following are the opinions and quotations of actual honey-producers thruout the country received during the last few days:

ILLINOIS.—Wholesale price producers are receiving: Extracted 20c; comb 25c. The demand is good. There is not much honey left in the hands of the producer.—A. L. Kildow.

INDIANA.—No honey being disposed of by producers at wholesale prices. Single case lots, 26-27c for extracted; pails 30-35c retail. The demand is fair. Not much honey is left in the hands of the producer. Have been buying in order to supply retail trade.—E. S. Miller.

MARYLAND.—Wholesale price producers are receiving: Extracted 22-24c; comb 26-30c. The demand is fair. Very little honey is left in the hands of the producer.—S. G. Crocker, Jr.

MASSACHUSETTS.—No honey for sale at wholesale. Very quiet market; only a limited demand in very small lots. Only about 20 per cent of last season's crop is left, and this is being sold to local customers at retail.—O. M. Smith.

MISSOURI.—Wholesale price producers are receiving is $7.00, $7.25, and $7.50 per case; no extracted except Airline on the market. Demand is good. There is no honey left in the hands of the producer in this county that we know of. Commission men charge the retailers $8,00, $8.25, $8.50 per case, comb honey. Some retailers retail their section honey as high as 60c a pound.—J. W. Romberger.

NEW JERSEY.—Further quotations are useless, as there is no honey in the hands of producers. —E. G. Carr.

NEW YORK.—Practically all honey sold in Onondaga County. Very little demand from wholesalers or consumers. Not over 5 per cent of honey left in the hands of the producer.—F. W. Lesser.

NEW YORK.—Wholesale price producers are receiving for extracted honey: Clover 25c; buckwheat 17½c. No comb honey left in this vicinity. Producers cleaned up at $8.50 per case for No. 1. Believe it would bring $10 now. The demand is excellent. Hardly any honey is left in the hands of the producer. No demand from big buyers. Retail demand is the best we ever knew at this time of year. We are retailing at the following prices: Clover, 60-pound cans, $16.50; 10-pound pails $3.25; 5-pound pails $1.75; buckwheat 60-pound cans $12; 10-pound pails at $2.75; 5-pound pails $1.50 each. Consumer pays delivery charges. We are selling to the trade 14-ounce glass clover at $9.00 per case of 2 doz. Good demand.—Adams & Myers.

OHIO.—Wholesale price producers are receiving for extracted honey 25c. No comb on the market. The demand is very good. There is very little honey left in the hands of producers. Bees are wintering finely; about 12 inches of snow on the ground furnishes a good protection for the colonies.—Fred Leininger & Son.

OKLAHOMA.—Wholesale price producers are receiving for extracted honey is 25-30c. Comb honey all sold. The demand is fair. There is not much honey left in the hands of the producer.—C. F. Stiles.

ONTARIO.—Wholesale price producers are receiving: Extracted 17-20c dark, 25c light; little comb left in producers' hands. The demand is good. Possibly 5 per cent of honey left in the hands of the producer.—F. Eric Millen.

PENNSYLVANIA.—Wholesale price producers are receiving: Extracted, buckwheat in kegs 17c, in 10-pound pails 20c. No comb of any kind. Demand is good. Practically no honey left in the hands of the producer.—Harry W. Beaver.

WISCONSIN.—Wholesale price producers are receiving for extracted honey is 25c, but the demand tending to become stronger. I do not know where there is any comb for sale. Small quantities of honey still in hands of isolated producers. Occasional producer has 5,000 to 6,000 pounds.—H. F. Wilson.

TRADE NOTES

A FINAL WORD AS TO SECURING BACK NUMBERS OF GLEANINGS.

A very large number of back copies and back volumes of Gleanings have been sold to our friends, seeking the best of beekeeping reading at lowest price. This has reduced the number of complete years that can be bought in single copies at 50c a year. But we still have the following years at this price: 1873, '74, '76, '88, '91 to '99 inclusive, '04, '05, '06, '09, and '10. A number of other years are almost complete. Understand that the years listed above as complete now may not be complete long, and when ordering please state if we may fill your order by substituting other numbers of Gleanings, if some of these years are no longer complete when your order reaches us; or you may direct us to refund your money.

As a final great offer, before clearing our stock room of surplus Gleanings, we will send to anybody remitting to us $1.00 50 copies of Gleanings, all of different dates, but no particular year or month—the selection to be made solely by us as our remaining stock permits. This is the lowest-priced offer of the best beekeeping literature that we have ever made. Write at once. Address

Gleanings in Bee Culture, Medina, Ohio.

Special Notices by A. I. Root

POULTRY-KEEPING IN FLORIDA.

Constant inquiry keeps coming in regard to Florida as a place for poultry, and my replies have been and must be brief. Our readers have likely gathered from what I have said about my own chickens in years past, that I think it an ideal place for one who really loves the work. A year or two ago I had a hen steal her nest in the woods, and come off on *Christmas Day* with 17 fine chicks. Just now our Florida Experiment State Station has sent out a bulletin entitled "Twenty-three Poultry Questions and Answers," which covers the ground very fully. Address Poultry Dept. of the Ag. College, Gainesville, Florida.

Advertisements Received too Late to Classify.

FOR SALE.—Honey in brand new 60-lb. cans.
Van Wyngarden Bros., Hebron, R. D. No. 4, Ind.

FOR SALE.—Pure-bred Italian bees in season, 20 years' experience. T. C. Asher, Brookneal, Va.

FOR SALE.—Second-hand 8-frame hives and supers. Martin Fink, Cold Spring, Minn.

FOR SALE.—Choice clover honey in new 60-lb. cans, at 22c per lb.; five or more cases at 21c f. o. b. Akron, N. Y. Wm. Vollmer, Akron, N. Y.

FOR SALE. — Push-in-comb queen-introducing cage, The Safe Way, 50c.
O. S. Rexford, Winsted, Conn.

FOR SALE.—50 cases best-grade sweet-clover extracted honey. Your best offer gets it.
Thos. Atkinson, 1954 Jones St., Omaha, Nebr.

FOR SALE. — New hives, reversible bottom-boards, telescope metal covers, self-spacing frames, made by me, sold at a big discount. Write for particulars. O. L. Rothwell, Gillett, Pa.

FOR SALE.—Ten 8-frame and ten 10-frame hives complete with bottom starters, painted, in fine condition; 3 shipping cases, 4 queen-excluding boards, and various other supplies. For particulars address J. W. Sherman, Wakeman, Ohio.

"Stanley's" queen-rearing nursery twin-mating boxes, cell cups and protectors. Cheapest and most adaptable. Write for information and prices. A. Stanley & E. C. Bird, 2008 Pearl St., Boulder, Colo.

FOR SALE.—New orange-blossom honey in new 60-lb. tin cans, cased single, at 22c per pound.
Garrison H. Adams, Palmetto, Fla.

FOR SALE.—Amber mountain honey, 20c; sage honey, 25c; dark honey, 15c; in 60-lb. cans. Bees and 4-frame extractor wanted.
C. F. Alexander, Campbell, Calif.

FOR SALE.—100 hives of bees; 100 new 10-frame hives, unpainted but nailed, wired for foundation; 1 extractor, 4-frame, "Kretchmer." Reason for selling, death of owner.
Mrs. R. R. Marble, Holstein, Nebr.

FOR SALE.—Italian queens, three-banded and Goldens. High grade, carefully bred from best select stock. Price each, $1.25; 6, $6.75; 12, $13.25; extra select, $2.00. Orders booked now. Satisfaction guaranteed.
G. H. Merrill, Pickens, S. C. (Formerly Liberty.)

FOR SALE.—32 supers, 8-frame; 5 Miller feeders; 10 large shipping cases, 3 in glass; 500 plain section-holders; 500 plain section fence separators; 300 super springs; 240 folded sections with full sheets foundation in supers. $50.00 for the lot.
Walter J. D'Allaird, 330 Ninth St., Troy, N. Y.

WANTED:—200 to 400 colonies bees to work on shares for 1920. 14 years' experience.
John Hutchinson, 7 Forsythe Ave., Detroit, Mich.

WANTED.—Two-frame Cowan extractor in good condition. Harold R. Curtiss, R. F. D. No. 4, Bridgeport, Conn.

WANTED.—To buy bees for April delivery, free from disease, in southeastern Minnesota or western Wisconsin. State how many colonies, kind of hives, and price. P. B. Ramer, Harmony, Minn.

WANTED.—Single man who knows all the kinks in the production of extracted honey, one who can raise queens successfully, and produce results. A good position and good wages for the right man for the season of 1920.
F. A. Young, Grand View, Idaho.

WANTED.—A stout boy or young man of good habits anxious to learn the bee business. Home in family with good treatment and reasonable compensation given. State qualifications and wages desired in reply. P. H. Elwood, Fort Plain, N. Y.

WANTED.—April 1 for six months, man with some experience to work in apiary run exclusively for extracted honey. State age, experience, and wages in first letter.
F. C. Alexander, Schoharie, N. Y.

WANTED..—One experienced beeman. Must understand out-apiary work for comb and extracted honey and the handling of motor trucks. Write full particulars, experience, reference, age, and salary wanted in first letter. I can also use one helper. Can give permanent employment to the right man.
W. J. Stahmann, Clint, Texas.

WANTED.—Position in a progressive bee-yard in southern California, by a young married man with good education, good habits, good health, good reference and not afraid of work. Three years' experience. State wages.
A. O. Smith, Loogootee, Ind.

SITUATION WANTED.—Young woman, desirous of learning modern beekeeping, wishes position. Address H. W., c o Gleanings, Medina, Ohio.

WANTED.—50 colonies bees in 10-frame hives on Hoffman frames wired worker combs, near N. Y. State.
Walter J. D'Allaird, 330 Ninth St., Troy, N. Y.

I have in Henry County, Va., a farm of 75 acres, 7-room house and out-buildings near church, one mile from school. Also have about 100 colonies bees in good 10-frame dovetailed hives. Most of the frames are wired. Plenty supers and other extras. I want a good man to occupy the house and care for the bees on shares. Give references.
D. F. Dunlop, Red Oak, Va.

TWO NEW BEE BOOKS

NOW READY

AMERICAN HONEY PLANTS

Including those important to the beekeeper as sources of pollen

By FRANK C. PELLETT

This book is the result of many years of personal investigation and travel from New England to California and from Canada to Florida and Texas to secure first-hand information on the sources of nectar and pollen. It is splendidly illustrated with 156 photographs, and describes the honey plants of all parts of America. A list of the honey plants of each State is given separately and the plants described in alphabetical order.

A knowledge of the flora is important to every beekeeper, as it is often possible to double the crop by moving an apiary but a few miles. This book is written by an expert beekeeper and a competent observer, only after having visited apiaries in most of the important honey-producing districts. 300 large 8vo pages. Enameled paper. Price $2.50.

OUTAPIARIES

By M. G. DADANT

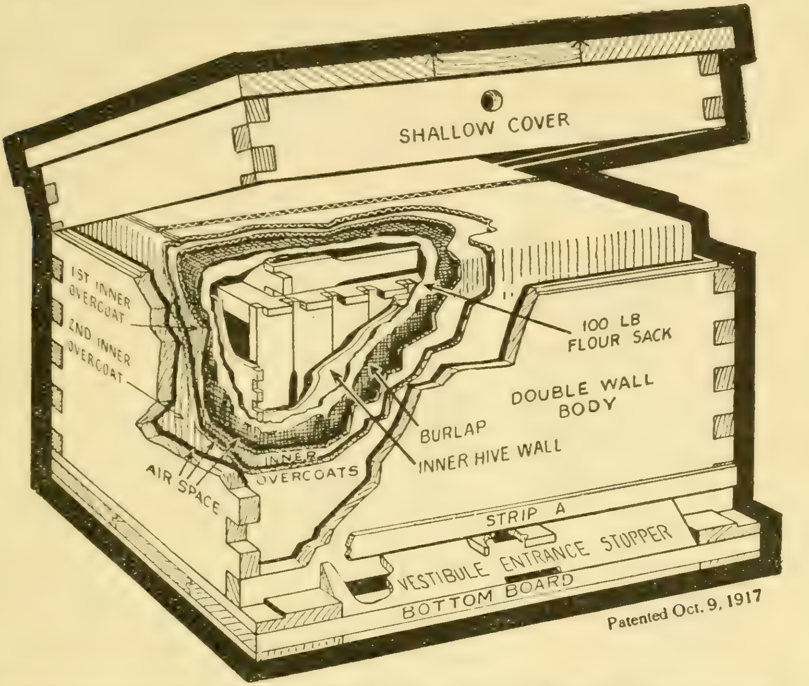
The development of beekeeping has been in direct relation to the extension of outyards in most localities. The Dadant family has kept bees extensively in the same locality for three generations and the author of this book has spent his life in commercial honey production.

The book deals with the business of beekeeping on a large scale, and describes the methods and practice of the most successful beemen. Special chapters on honey houses and equipment, autos and trucks and similar apparatus required by the extensive honey producer. 125 pages, 50 illustrations. Price $1.

Add 75 cents to the price of either of the above books and get the book and the American Bee Journal for a full year.

AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS

Winter Problem Solved by the Hive with an Inner Overcoat . . . .



Patented Oct. 9, 1917

NOW FURNISHED WITH JUMBO DEPTH OR STANDARD HOFFMAN FRAMES.

Do you know that E. D. Townsend & Son, two of Michigan's most extensive beekeepers, with their 1,100 colonies of bees, have three yards of Government tenement winter cases that they have discarded? One beekeeper speaks of these tenement winter cases, recommended by the Government, as ice boxes. With their thick walls, they are slow to warm up during an occasional warm day thruout the winter. There are occasions when one cleansing flight will result in successful wintering. Protection Hives with the Inner Overcoat will have bees bright and lively at the entrances during sunshiny but cool days, when not a bee will be in sight at the entrances of other hives and styles of winter packing. Think of the saving in expense for cases, time and labor in packing and unpacking, and the simplicity of putting your bees safely into winter quarters with the Protection Hive as compared with the tenement winter case. With this hive you have an efficient, compact, substantial equipment without the litter of packing materials and the inconvenience of having them around. Send for special circular and 1920 catalog.

TIN HONEY PACKAGES.

2 lb. Friction top cans, cases of 24
2 lb. Friction top cans, crates of 612
2½ lb. Friction top cans, cases of 24
2½ lb. Friction top cans, crates of 450
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 203
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 113

Special Prices.

Crates of 100 five-pound pails	$ 8.00
Crates of 200 five-pound pails	15.00
Crates of 100 ten-pound pails	12.50
Sixty-pounds cans, two in a case, per case	1.15

Shipments made from Michigan, Ohio, Illinois and Maryland factories.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

CLIP YOUR COUPONS

The Liberty Loan taught Americans to save money.
You just clip the coupons and get your reward.
Choose "Beeware" investments from the 1920 catalog.
You will be sure to clip "coupons" early next fall.
"Beeware" keeps pace with apiarian progress --- for you!

The Signs of Progress.

1. A change in frame-piercing to prevent sagging. (Dr. Miller writes: ''Ought to be worth many dollars to the business of honey production.'')
2. New frame-wiring device—no more loose wires.
3. Zinc queen-excluders brushed to remove rough edges; no ''steel strike'' delay in these boards.
4. Three new feeders: A metal Alexander—no more leaks; an improved Doolittle—no more drowned bees; Lewis-Bonney—best gravity feeder made. (Designed by Dr. A. F. Bonney, Iowa Association President.)
5. Pound-package cage designed by T. W. Burleson of Texas; nucleus shipping box proved by five years' trial—complete bee-breeders' supplies.
6. Modified Dadant hive—the Dadant idea proved in 50 years of extracted-honey production.
7. Augmented Service Department announces three new ''How'' Booklets at 5c each; ''How to Care for Package Bees;'' ''How to Extract Wax from Combs;'' ''How to Use an Observation Hive.''

Remember: You can get these new and better appliances ONLY from distributors of Lewis "Beeware."

Look For

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. U S A
MAKES THE FINEST.

This Mark

Branches and Distributors Everywhere

G. B. LEWIS COMPANY

WATERTOWN WISCONSIN

GLEANINGS IN BEE CULTURE EDITORIAL

Announcement of a Policy.

THE JANUARY GLEANINGS, in its news items, stated that the proprietor of the "Pelican Apiary" at New Orleans had been landed in the Ohio penitentiary, having been convicted of embezzlement at Cleveland. We might have added that a small advertisement of this rogue appearing twice in Gleanings' columns had much to do with his detection. We are more than well satisfied with so much of the results obtained by this "gentleman" from his advertising efforts in our columns. But that his advertisement appeared at all in Gleanings furnishes the text for what is here going to be said.

We asked for and received from this swindler, before accepting his advertisement, a reference that we supposed in all right faith to be good. But it was not good. He deceived us, and a large number of our subscribers were swindled to a total extent of a thousand dollars by sending him orders for queens and bees that were never filled nor their money returned to them.

We shall refund to these subscribers of Gleanings every dollar sent by them to this dishonest concern as a result of seeing this man's advertisement in our columns, upon proof of such loss, and that it came about by answering this advertisement seen by them in this journal.

We never mean to permit an advertisement of the least question to appear in Gleanings, and no legal responsibility lies against us in this matter; but we can not evade the conviction that a moral responsibility does, for we let a rogue into our columns whom we might have possibly discovered by more searching investigation of his references and himself.

In the next issue of this journal we shall announce an advertising guarantee against deliberate swindlers such as the "Pelican Apiary," and state the terms of such guarantee. These terms will remind our subscribers that they have some responsibilities in such a guarantee as well as ourselves and as well as our advertisers, for there is good reason back of that old principle of law, *caveat emptor*, which translated means that the purchaser shall take good care on his part as to the man from whom he buys and the terms he makes. We can not attempt to adjust trifling disputes between subscribers and honorable business men, nor guarantee against loss by honest advertisers who become bankrupts or are unable to fill contracts because of innocent misfortune or unfavorable conditions beyond their control. We hope not to have such unfortunate advertisers, but the greatest care may not always prevent it. We shall henceforth, however, guarantee our readers against loss (up to the full amount of investment) that may come about thru our admitting an advertisement in our columns of a dishonest man or dishonest company. We will not plead our innocence nor care in the case. We will plead guilty to letting a rogue get by—and will settle with our subscribers. This is as far as any publication can or does guarantee its advertising—and so much we will do.

We now say to our readers and to prospective advertisers in our columns that the most exacting references as to both character and financial standing are required in every case of parties unknown to us seeking admission to our columns to advertise as dealers in queens and bees, beekeepers' supplies, honey, or anything whatever that presupposes the integrity and financial ability of the advertiser to assure our readers a fair and honest deal. This rule does not apply in all cases of minor advertisements in which our readers can clearly guard their own rights by ordinary precaution, such for instance as the sale of a colony of bees or the bee supplies of a private individual, with no payment in advance asked.

We require of a new and unknown advertiser the signed endorsement of both his good character and financial standing by his postmaster, his banker, and a public official of his home; or, if it is obviously impossible for the would-be advertiser to obtain such, we require three signatures equally as responsible as his postmaster, banker, and a local official, whose responsibility we can establish.

Altho these strict requirements are meeting with the complaint of some seeking to enter our columns as advertisers, we insist on them. We propose to defend our readers against loss and fraud by dishonest and unreliable advertisers, and to defend our advertisers against the unworthy who seek to share with them the good name and fame that go with admission to our advertising columns. We want it to be said that if you see an advertiser's name in Gleanings he is unquestionably honest and to be trusted—and we are going to have it so.

* * *

The New Organization.

AMONG WELL-INFORMED beekeepers it has been no secret that the National Beekeepers' Association, having no definite headquarters no definite policy, no permanent officers, has been on the sick list. Its demise has been expected at almost any moment. But out of the old organization has now developed a new one with certain definite policies that look good. For particulars the reader is referred to page 104. But this organization, good as it is, can not succeed unless beekeepers get back of it in a substantial way with their dollars and their moral support. Gleanings wishes the new venture success.

A New Substitute for Sugar.

ACCORDING TO A BULLETIN from the Department of Agriculture, Bureau of Chemistry, there is, or will be shortly, a new malt sugar. It is stated that the shortage of ordinary table sugar and the recent prohibition law have made it possible to bring out a new sugar that will compete with the ordinary sugar of commerce. It has been stated that the breweries, with but very little change, can be used for the manufacture of this new product. The sugar looks very much like maple sugar, and can be used in baking and cooking; and, while not so sweet, it can be used on the table. From the description given concerning it we should rather imagine it is an invert sugar, and probably would be a competitor of honey for manufacturing purposes. However, the beekeeper need have no fear, because honey has always held its own. It has a natural flavor that no artificial sugars have or can have.

* * *

Queen-cage Candy; Between the Devil and the Deep Sea.

SOME YEARS AGO the Postoffice Department, acting on the request of some beekeepers in California, issued a ruling that all candy used in the transmission of bees and queens thru the mails should not contain honey unless it has been boiled 30 minutes in a closed vessel. The purpose of this ruling was to prevent the spread of bee disease from candy made from infected honey. But experience proved that a boiled honey almost ruins the candy. Then an effort was made to comply with the spirit of the ruling by using invert-sugar syrup—that is, a syrup having the characteristics of honey; and it was found that a very good queen-cage candy could be made of it. High hopes were entertained that this would solve the problem. But, unfortunately, candy made with invert-sugar syrup is apt to become hard in a very short time, so that bees actually starve on it.

We have been making some experiments in testing out the candy from unboiled honey and the candy made of invert-sugar syrup. Careful tests have shown that the former will keep moist and soft for days after the latter has become hard and unfit for a queen and bee food. Candy made of invert-sugar syrup will remain moist for two or three days; and for short-distance mailing, where the queens can arrive before the candy becomes hard, everything goes on lovely. So far, so good; but when an effort is made to send queens long distances or for export, trouble comes.

Under the postoffice ruling, the queen-breeders are not allowed to send queens to foreign countries in cages containing unboiled honey. Candy made of invert-sugar syrup is unsatisfactory for the reason named. Candy made of boiled honey is worse yet. Apparently there is no form of syrup that satisfactorily takes the place of honey as a bee food, either for the purpose of breeding bees in the spring or for sending queens thru the mails.

Gleanings is in favor of the ruling. In fact, it believes it is good; but apparently the queen-breeder who sends queens long distances is between the Devil and the deep sea.

Perhaps the Postoffice Department will allow the use of unboiled honey of good quality from some apiary where there has never been foul brood, and which has been carefully examined and kept under the supervision of Government experts. That there is plenty of good honey produced in localities where there has been no disease is true. It is our opinion that most of the honey sent by carload does not contain any disease—neither European nor American foul brood. There is considerable doubt as to whether honey is ever the medium of conveying European foul brood; but that it might carry the germs of American foul brood is now well proved. It is because of this that the Postoffice Department issued the ruling it did.

* * *

Packing Bees on the Pacific Coast.

THE EDITOR VENTURED to suggest last winter in California that perhaps the beekeepers of that State could afford to use moderate packing. Most of the veterans, however, believed this to be an unnecessary expense. We talked with a number of small beekeepers, and several of them expressed their determination to try out the experiment. Among them was R. E. Fairchild of Redlands, who writes:

Dear Sir:—When you were in Redlands last winter we had some discussion in regard to packing bees in California, and I had, at that time, 10 colonies packed in straw, and promised to report to you the result of the experiment. I weighed 20 average colonies in the fall, packing 10 and leaving 10 unpacked, for a check.

As the experiment was somewhat crude, and the packing was torn up several times by stock and had to be renewed, and was not very well done anyway, I will not go into minute details, but simply give the results as far as I was able to observe them.

I laid off an empty brood-frame in inch squares by means of twine, and counted the total number of square inches of brood in four packed hives, and compared them with the four unpacked ones, and the packed colonies averaged 40 per cent more brood on April 1. The difference in weight also indicated that the unpacked hives used 30 per cent more honey, but part of this would probably be accounted for in the extra weight of brood in the packed colonies.

I stumbled on to something else, which may or may not be new to you, but which I will also try this year. I have had two or three colonies which have been under the shade of an oak tree in winter, and these have wintered very much better than the same-sized colony sitting out in the sun. I judge this is due to their being kept cooler on warm days, thus keeping the bees quieter, so they do not wear themselves out flying. I find these colonies do not use so much honey either. I am going to place a number farther under the tree, where it will not only be cool, but also dark, and then notice the result.

I also have permission to use a cold storage room which is not in use in the winter, and I will try about 10 in that, after the manner of your eastern cellars. I would also like to have any suggestions on this that you might make, as cellar wintering is an entirely new and untried game to me. The room I speak of is apparently a very well insulated one, as I find that, with a variation of 30 or more degrees outside, the variation of the room is less than two degrees.

I will use 4 inches of planer shavings on the bottom, 6 inches on sides, and 9 inches on top. Shavings are very cheap, and the extra lumber for this amount of packing is of very little consequence.

R. F. Fairchild.

One swallow does not make a summer; but a moderate amount of packing ought to be an advantage in some places in California. M. H. Mendleson of Ventura, one of the most extensive beekeepers on the coast, says he knows it pays. Perhaps it is not wise to draw definite conclusions as yet; but the matter is certainly worthy of experiment.

The great loss in California is due to bees being drawn out of their hives by the alluring sun and never getting back again. For this same reason we also believe that it may be an advantage to have bees in the shade.

* * *

Code for the Sale of Queens and Bees.

THE GREAT INCREASE of business in the sale of queens and bees by regular breeders (and generally at long distances) has brought about the urgent necessity for definite agreement and stipulated conditions as between the seller and the buyer. The Editors of Gleanings have been in a position to hear the complaints of both sides of the business and to learn the commonest points of friction and disagreement between the rearers of queens and bees and their beekeeper customers. Accordingly, we set about drawing up a ''code'' for the sale of queens and bees, keeping carefully in mind what we regarded as the necessities and rights and limitations on both sides of this selling and buying proposition. When we had finally got this ''code'' in shape, we sent it to 48 of the leading breeders of queens and bees thruout the country, accompanied by the following letter:

Dear Sir:—We are enclosing a copy of a proposed "Code for the Sale of Queens and Bees," which we ask you carefully to read, and then, if you will, write us your views of this proposed code. It is open to all and any reasonable modification. When its provisions can be generally agreed upon as fair and just by the queen and bee rearers, we propose to publish it in Gleanings and request our advertisers and their patrons to live up to it. Both parties have obligations to regard in the transaction.

We think you will agree with us that it is time that some common terms of agreement be reached between the rearer of queens and bees and their customers; that these terms be distinctly understood, and then strictly lived up to by both parties. In a word, it is time that clearly defined business procedure be put into the queen and bee sales business, for the good of the business itself.

We hope for the hearty co-operation of every reliable bee and queen rearer in our effort to put the enterprise on a correct business basis; for, if this can be done, the business of queen and bee rearing will be greatly benefited.

May we not hope to have your views on this proposed code at an early date?

We had hoped for a hearty response from the breeders to our efforts to help get their business on a more satisfactory basis. But the response that came to our letter and proposed ''code'' was so general and so hearty as to exceed all our hopes in the matter. Most of the 48 breeders responded at once, and of these fully half indorsed the ''code,'' without change as drawn up by ourselves. The rest suggested changes. Wherein the breeders agreed generally in suggesting changes, we made such improvements as they suggested in the code, re-drafted it, and again sent it (as thus re-drafted) to the breeders, with the following letter:

Dear Sir:—We are herewith enclosing a copy of the "Gleanings Code for the Sale of Queens and Bees." This revised copy of the "code" is the result of many letters containing valuable suggestions received from a large number of queen and bee rearers of the country. We have incorporated in this revised "code" the changes suggested by any considerable number of the queen and bee rearers to whom we submitted the first draft.

Will you now be so good as to read over the "code" as revised, and send us at your earliest convenience any further suggestions that you may have to better it. We want this code right and satisfactory to the queen and bee rearers as well as to their customers. If we do not receive a reply from you, we are going to assume that the "code" in its present shape is satisfactory to you.

To this second letter, we had 16 replies, all agreeing to the re-drafted ''code'' except four. Of these, two proposed merely word changes in the code that we accepted. The other two objected to the clause requiring the shipper to agree not to make sale of queens and bees from an apiary infected with foul brood. One of these did not dissent from the spirit of this clause in the code. He said he certainly would not ship from a colony infected and always used invert sugar in all the feed—and was not this precaution enough? The other said, ''No queens should be shipped from **colonies** infected with foul brood — but if we did find one or two cases we would get rid of it at once and keep right on shipping queens.'' After long and careful consideration of this foul-brood clause, the Editors of Gleanings concluded (as evidently did all but two of the breeders) that it would not do to let down the bars on foul brood, altho we did modify this provision of the code by providing that the customer be informed of conditions if bees or queens are to be sent from a yard where there may be any foul brood. If the breeder has foul brood, his customer certainly has the right to know that fact in advance. How could the second objector to the code quoted above get rid of foul brood "at once" and know he was rid of it "at once." It is not a get-rid-of-at-once disease.

The "code," as twice revised, and signed by practically all of the most prominent rearers of queens and bees in the country, is printed in full below. We have told how careful we have been in trying to have this "code" right and just to all parties concerned. We wish it remembered that it embodies all the suggestions on which the leading breeders of the whole country are in agreement. It is not likely that it is perfect—most things human are not. If experience shows that it needs correction or amendment, we shall be glad to make such. But let us try it this year, as generally agreed on, and learn if it does not go far to put the business of rearing, selling and buying queens and bees on a far better and more definite basis. Here, then, is this "code:"

GLEANINGS CODE FOR THE SALE OF QUEENS AND BEES.

The bees of Italian queens are distinguished from blacks by the three yellow bands on the upper part of the abdomen. Leather-colored Italians, as the name signifies, are those whose stripes on the abdomen are darker yellow—leather-colored. Golden Italians are those having four or five yellow bands, sometimes called four- or five-banded Italians.

An untested queen is one which is sold soon after she is found to be laying, not one previously tested and known to be impure.

A tested leather-colored queen is one whose bees have been examined by the breeder and found to be uniformly marked with at least three dark-yellow bands; a tested golden, one whose bees have at least three or four bright-yellow bands, this signifying pure mating.

Select queens of any of the grades are those which show special advantages as to color, size, shape, etc.

A breeding queen is one which has been kept long enough for the apiarist to test her queens and to prove her bees are good honey-gatherers. A breeding queen may be a year old when sold.

All salable queens are to be mated and laying when sold, with the exception of those expressly sold as virgins.

Those advertising queens in GLEANINGS guarantee safe arrival of the queens. The breeder agrees to refund the money or to replace the queen if the one first sent arrives dead or is so feeble that she dies before she can be introduced—provided the beekeeper receiving the dead or unfit queen, returns her at once, and in her own shipping cage. No delay in returning the queen can be permitted.

The breeder agrees, when accepting an order, to send out all queens if possible within five days of shipping date specified in the order, and also agrees, when for any reason a shipment has to be delayed beyond five days, to inform the purchaser at once of such delay and specify another probable date when shipment can be made. And whenever for any reason a shipment has to be delayed from time to time, the breeder agrees to inform the purchaser at once of each such necessary delay and to specify in each such case of delay a new probable day of shipment. If the new date is not satisfactory to the one sending the order, the breeder agrees, when requested to do so, to return at once any money accompanying a cash order.

The queen-breeder agrees to make no shipment or sales from an apiary infected with foul brood, unless the exact condition of the apiary be made known to the customer, satisfying him that there can be no danger in making shipment from such apiary.

[The queen-breeder must use either honey boiled for 20 minutes in a closed vessel, or invert sugar (nullomoline) in making his candy for mailing-cages and pound cages, as strictly required by the U. S. Postal regulations.]

When requested to do so, the breeder agrees to give the purchaser notice two days before filling an order, to enable the purchaser to know just when to look for the shipment.

No cancellation of an order will be binding on the breeder if it is sent without good and sufficient reason, or if he receives such cancellation two days or less prior to the filling of an order.

BEES.

Those advertising bees for sale in combless packages agree to put at least 10 per cent overweight of bees in each package when preparing for shipment, to make up for those that are likely to die before the package reaches its destination. But there is quite likely to be some shrinkage in weight, which in some instances may be as great as 20 per cent, due to the fact that the bees may have been filled with honey when shaken into the cage; therefore, shrinkage of 10 per cent in weight is not in itself evidence of short weight by the shipper.

The shipper agrees to use a cage ample in size, provide same with candy sufficient for the journey and take all due precaution by the use of proper address tags and instructions to expressmen, to prevent undue delays and careless treatment of the bees en route. The shipper also agrees to have directions for the disposal of the bees on arrival tacked to the package, or enclosed with his acknowledgement of the order.

The shipper agrees to make good the loss of bees in case the shipment reaches its destination in poor condition, provided the buyer obtains a bad-order statement from the express agent, and forwards the same at once to the shipper when making claim for replacement.

The shipper agrees to supply young bees largely of the stock ordered with very few drones. If pure stock is not expressly specified in the order, the bees are not necessarily to be pure stock, but blacks shall not be sold for Italians.

The shipper agrees to make no shipment or sale of bees from an apiary infected with foul brood unless the exact condition of the apiary be made known to the customer, satisfying him that there can be no danger in making shipment from such apiary.

[The shipper must use either honey boiled for 20 minutes in a closed vessel, or invert sugar (nullomoline) in making his candy for mailing-cages and pound cages, as strictly required by the U. S. Postal regulations.]

At the prices quoted on bees, it is to be understood that queens are not included. But if queens be included in the order, the price of the queens desired will be added to the price of the bees.

When requested, the shipper agrees to notify the buyer two days in advance of shipment.

It is impracticable to define the number of bees on the combs when one-, two-, three- or five-frame nuclei are ordered. It is also impracticable to define the amount of honey in the combs. Especially in hot weather it is not practical to select combs heavy with honey or brood, nor is it good practice to ship too many bees.

In case a shipment of bees has to be delayed or delayed from time to time, for any reason, the shipper must at once inform the purchaser of such delay or of such several delays as they occur and specify another date in each case, when shipment can be made. If the new date is not satisfactory to the one sending the order, the breeder agrees, when requested to do so, to return at once any money accompanying a cash order.

"THOUSAND - DOLLAR TRICK"

A New Old Scheme for Increasing the Capacity of a Hive Without Enlarging It

By E. R. Root

IN the last issue, page 9, I promised to tell something about a scheme that will increase the capacity of a hive without enlarging the hive itself. I also said that one man told me that the scheme would be worth a thousand dollars to him, and he is an old and experienced beekeeper at that.

The idea of enlarging the capacity of a hive without increasing its dimensions seems paradoxical, but it is not; and then when I tell you what the trick is, at least some of you will say, "Fudge! I knew that before." It may be so; but if you did, did you practice it or did you realize what you had accomplished by it?

The scheme I have in mind is both new and old—old because the general idea has been advocated and practiced by beekeepers in certain sections for years; new, because this particular plan, while used quite largely in southern California, is not generally known.

To go back a little, I may say that thruout the beekeeping world there is and has been a general desire to prevent foundation in brood-frames from stretching, and there are a hundred and one ways of doing it, some good and some bad. There would be no harm in foundation stretching were it not for two things. First, a normal queen avoids cells that are neither drone nor worker. Get that fact clear in your mind. When there is about two inches of stretched cells near the top-bar there is two inches of comb surface that is not available for brood. Have you ever thought of that? This amount will average 20 per cent in a Langstroth frame having four horizontal wires not reinforced as hereinafter explained. Second, some cells stretch enough to make them sufficiently large for the rearing of drones; and a large amount of drone brood right in the midst of a heavy flow is always a waste of bee energy and a waste of honey, whatever one may say of the desirability of mature drones to help keep the supers warm.

Now, that little trick of the trade, call it new or old as you like, is a scheme to prevent foundation from stretching in brood-frames so that the nearly two inches of space above the circle of brood in an ordinary Langstroth frame will be used for worker brood and not honey.

Dr. Miller, who uses wooden splints to support his foundation, says he has no trouble in making his queens rear brood clear up to the top-bar. Why? Because those splints absolutely prevent sagging, and he once said to me when I was at his place that he thought this "trick" of his was one of the biggest that he ever put out. "But, Doctor," said I to him, "while that 'trick' is all right for the production of comb honey, it is of almost no value for holding combs securely in a frame while they are being run thru the extractor. There is no attachment to the frame."

Years ago, when I reached the age where most boys know more than their dads, I threw out of the catalog A. I. Root's scheme of vertical and diagonal wiring as shown in Fig. 1. Frames so wired, I distinctly remember, held solid cards of brood clear to the top-bars. A. I. Root had no trouble with this scheme in getting the queen to go up into the upper story of his 15-frame chaff hives. Well, when father's scheme of wiring was thrown out from the catalog and our general literature I substituted the plan, now so well known, of four horizontal wires. See Fig. 2. In this I had the support of some of the largest beekeepers at the time. The thick top-bar, then accepted by the big beekeeping fraternity, made it impossible to use the vertical wiring. The result was that nearly every one adopted what seemed to be the only scheme possible, and that was to use four horizontal wires strung thru the end-bars. Such wiring made beautiful combs with one exception, namely, the cells for about two inches below the top-bar would stretch slightly—not while the foundation was being drawn out, but **after** the combs had been in use for a year or two, or after a strain of a heavy crop of honey during a hot spell. This space would usually be filled with honey because the queen would avoid these stretched cells.

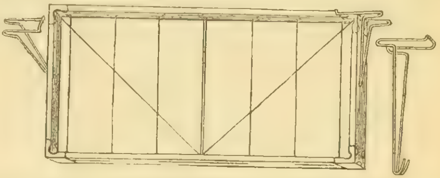


Fig. 1.—A. I. Root's scheme of wiring used years ago.

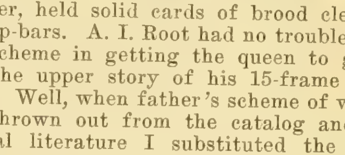


Fig. 2.—Present ordinary scheme of wiring.

To overcome this difficulty Dr. Miller used wooden splints about 1/16 of an inch square, placed vertically about three inches apart on the foundation. Others recommended the scheme of painting hot wax over the surface of the foundation. This, when cooled, stiffens the sheet so it does not stretch. In other words, it makes a "heavy brood foundation." In my humble opinion other means are cheaper and better.

Others have recommended using the regular horizontal-wiring scheme, but pulling the two top wires downward when imbedding the foundation, thus taking out the stretch, and at the same time putting an upward strain on the sheet. This, to a large degree, overcomes the tendency to stretch, and is vastly better than the four wires imbedded in the usual way. Good as the plan is, it does not go quite far enough.

Along in the 90's a man by the name of Keeny recommended what is known as the Keeny method of wiring. He drove a nail in each of both end-bars about ¾ inch from each end. The nail-points were then bent in the form of a hook, making one hook in each corner of the frame. The frames were then wired over the hook as shown in Fig. 3. The objection to this plan was that the foundation bulged between the wires, and it did not altogether stop the stretching near the top-bar.

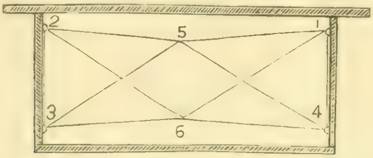


Fig. 3.—The Keeny method of wiring, used in the 90's, permitted a bulging of the foundation between the wires.

Some three of four years ago I called on Mr. Southworth and Mr. Brown, of the Western Honey Producers, in northwest Iowa. Mr. Brown called my attention to their method of wiring shown in Fig. 4. This, he said, eliminated all stretching, and was very much superior to the usual scheme of using four horizontal wires. The plan is good, but there is considerable work in putting the wires; and, moreover, it does not, in my opinion, give all the support it should near the top-bar.

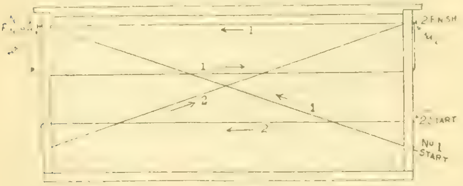


Fig. 4.—Brown and Southworth's method, which is good but involves considerable work.

Now, then, for the new old trick of the trade which I think is better than any of the methods just described. It is no new and untried experiment, because it has been used for several years all over California, and with most gratifying results. It was introduced, if I am correct, by C. F. M. Stone, Lamanda Park, Cal., of whom photos have been shown in Gleanings several times of late. Well, here is the trick;

He uses nothing but regular standard factory-made brood-frames—that is to say, Hoffman thick-top frames with four holes equally distant in the end-bars. He puts in four horizontal wires as shown in Fig. 2. Then he goes just one step further. After he has put in the four horizontal wires and fastened them he drives in two more tacks close to the bottom hole in each end-bar. Then he threads another wire from the bottom wire on one side diagonally up over the top wire, then diagonally to the bottom hole on the other side; draws the two diagonal wires taut, and fastens. That is all. See Fig. 5. You will note that the top wire is drawn down a little as shown at B. You will also observe where the diagonal wires intersect the horizontal wires B, C, C, D, D, that the foundation will be reinforced at those points. Point B will be stiffened on account of the tension, so that it can not sag. The second horizontal wire is reinforced at two points, C and C; the third horizontal wire is likewise reinforced at two points, much as concrete is reinforced by means of cross-rods.

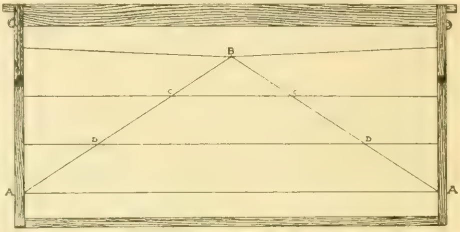


Fig. 5.—The Stone method of wiring, which is unusually good.

How I Discovered the Trick.

I noticed that Mr. Stone, when I looked over his bees, had brood clear to the top-bars, but I supposed that this was due to climate. Later on, after going thru a number of apiaries in southern California I noticed that brood would be clear up to the top-bars in some cases, and in others two inches down. This excited my curiosity, especially when I saw in one hive a comb with brood clear up to the top-bar, and the very next comb, perhaps, with brood no nearer than two inches. Then I held the combs up to the light, and, presto! I caught on to the trick. I found invariably that when there was two inches of honey above the brood there were the usual four hori-

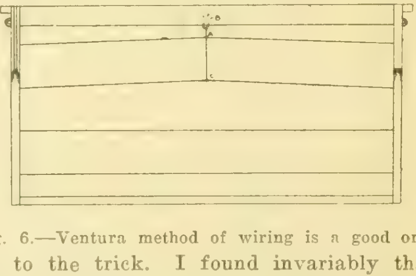


Fig. 6.—Ventura method of wiring is a good one.

zontal wires. When the brood went clear to the top bar I invariably found that either the Stone or the Ventura scheme of wiring had been used. This will be described below.

Another interesting fact was that many beekeepers who had bought bees from different apiaries were unable to explain **why** brood went to the top-bar in one case and not in the other; but when I showed them the "trick" they caught on.

There was another plan of wiring that I found used in Ventura County. The scheme, while employing the four horizontal wires, was a little different. A staple is driven on the under side of the center of the top-bar. To this is hooked a short piece of wire. This is looped under the top wire, drawn upward, and then it is run under the second wire, pulled upward and fastened. See Fig. 6. Wherever I saw these combs there was no stretching of foundation, and brood would go to the top-bar. For extracting purposes the comb is not held as firmly as in the Stone method or in the method shown in Figs. 7 and 4.

Recently I ran across another idea that looks good—very good to me. It is a modification of the Stone idea; and from the fact that it would allow electrical imbedding without overheating some wires, it appeals to me. The plan is exactly the same as the Stone, except that, instead of running the diagonal wire from A over the top wire at B, as in Fig. 5, it is passed up thru a hook or staple driven in the under side of the top-bar, then run to the bottom holes on either side as at A. See Fig. 7. This has the further advantage that it reinforces the top horizontal wire at E and E, and the other wires (see Fig. 7) at C and C, and D and D respectively. Nor is it necessary that the wires be drawn taut. The nice feature of the plan is that it will permit slipping a whole sheet of comb foundation between the four horizontal wires on one side and between the diagonal wires on the other side. This will leave four wires on one side of the sheet and the diagonal wires on the other side. Each set of wires can be imbedded independently. When using the Stone method, if electricity is used, only one strand of wire can be heated at a time. If there should be an attempt made to run the current from A A thru all the wires (see Fig. 5) there would be numerous short circuits, with the result that some wires would be red-hot and others hardly warm. This last plan makes it possible to carry out the Stone idea and still use electrical imbedding.

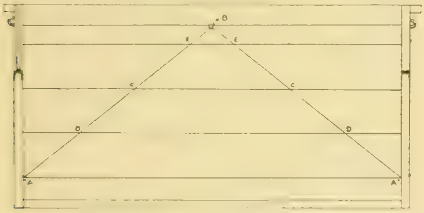


Fig. 7.—Recent method, which closely resembles the Stone method and has some advantages over it.

One thing ought to be said right here, and that is that with any plan of wiring where the wires cross each other, the bees are apt to gnaw holes. Don't worry about this as they will close them at the first honey flow or after the first season. That was the experience of A. I. Root with his form of wiring.

Now, then, dear reader, to recapitulate: No matter which of the last three schemes you use to prevent the top of the foundation from stretching, you will **increase the brood room of an ordinary ten-frame Langstroth hive by about 20 per cent without enlarging the hive.** In one way of looking at it, this little "trick of the trade" makes a 12-frame hive out of a 10-frame hive at almost no expense. Where foul brood of the American type is rampant one can very soon convert his combs into the non-stretching sort.

But the non-stretching combs mean another thing that is **very important.** When the brood goes clear up to the top-bar, the queen is much more inclined to go into the upper story with little or no coaxing, and the result will be that swarming will largely be eliminated. When, however, she comes to about two inches of comb that is neither drone nor worker she stops. She rather hesitates about crossing that space, and, as a matter of fact, she does not cross it. Also, she will not lay eggs in the two outside combs. When the eight combs have been filled with brood in the height of the breeding season, the colony is inclined to swarm if the queen can not have more room. She usually does not go above immediately. Putting on an upper story where there is two inches of stretched comb in every frame does not usually stop swarming, unless some of the brood are lifted above.

Now, if you have read carefully all I have said you will see why a big beekeeper said the Stone method for eliminating the stretching of foundation or comb was worth more than a thousand dollars to him. He could have said that, in a series of years, it might have been worth many times that to him in the elimination of swarming and the saving of labor in lifting the brood into the upper story. With labor conditions as they are, it is almost impossible to get competent men and when you do get them they may do the brood-spreading so unintelligently that more harm than good is done. No one but an expert should spread brood.

Get my point. If you can make conditions so that the queen or bees will do their own spreading, don't you see you cut down your labor, your swarming, and at the same time increase your honey crop at a time when labor can scarcely be had for love or money? Lastly, the bees or the queen will not spread the brood too fast. When the frames are properly wired the queen is much more inclined to spread her brood area without help from the apiarist.

WHY YOUNG QUEENS MAY FAIL

An Experiment That Goes to Show That Young Queens are Sometimes Only Partially Fertilized and Why

By F. W. L. Sladen
(Apiarist, Dominion Department of Agriculture, Ottawa.)

FOR our 1919 breeding experiment, it was decided to take 16 queen bees of selected parentage to Duck Island, at the eastern end of Lake Ontario, to be mated with drones of selected parentage, 500 of which were to be brought with the queens.

Duck Island is about two miles long (three miles including the small adjacent Yorkshire Island), and three-fourths of a mile wide in the widest part. These islands are eight miles from the nearest islands. It was expected that our queens would be well beyond the range of flight of drones located as much as eight or more miles away, altho no definite information on the limits of flight of drones and queens has been obtained.

It was hoped that no bees were present on Duck and Yorkshire Islands. Information to this effect had been obtained from the owner, and was later confirmed by the lighthouse keeper and other persons on Duck Island.

The eastern part is low, narrow, swampy, windswept, and margined on the south shore with a broken line of trees. Hay is grown here. The western part is thickly wooded, especially at the western end, with clearings which are quite extensive eastwards.

Sixteen nuclei in eight boxes contained the queens and the drones. The nuclei were made up on July 16, each with a just emerged queen and two tough old combs (Langstroth size), containing a little honey and capped brood, and enough young bees to cover thinly one comb. The combs were held rigid at top and bottom, and there was a space for a third comb in each nucleus. Each nucleus had also two one-inch wire cloth-covered ventilators closable with corks and two flight-holes closable with wire cloth. The start was made from Ottawa July 21. On the morning of that day, 500 drones were run into the nuclei, 30 to 50 in each. These drones had been raised in a drone comb given to a certain colony on June 16, and later placed between queen-excluders after the larvæ had been capped. Nearly all of the drones had emerged by July 21. They looked immature, however, but many were able to fly.

Duck Island was reached at noon on the 23rd.

Before the bees were let out, a careful inspection of the island for the presence of honeybees was made. A little white clover was found to be in flower and secreting nectar well in a moist pasture near the fishing settlement at the east end of the island. A number of small basswood trees were also found in flower and secreting nectar well in the bush at the west end of the island. The weather was warm and sunny, and as no honeybees were to be seen at these flowers the boxes were placed in a clearing in the bush in the western part of the island, about one-third of a mile from shore, and the bees were allowed their liberty at nightfall. No drones had been killed.

The island was visited again on August 6 to 8 for the purpose of bringing the bees back. The basswood honey flow had ended, and examination of the nuclei showed that

Details of Results, Duck Island, 1919.

Nucleus No.	Approx. age at which queen began laying*	Sex of pupæ August 14	Spermatheca	Sperms found
3 A	July 28	Approx. 50% drones, 50% workers	Slightly clouded	Abundant
3 B	July 29	All drones	Clear	None
4 A	July 28	All drones	Clear	None
4 B	July 28	Drones, 3 workers	Clear	None
5 A	Aug. 5	All drones (Sept. 15)	Clear	None
5 B	Aug. 1	Drones, 4 workers	Clear	None
6 A‖	......	....	....	....
6 B†	......	....	....	....
7 A‡	......	....	....	....
7 B	July 28	All drones	Clear	None
8 A	July 28	All drones	Clear	None
8 B	July 31	Approx. 66% drones, 33% workers	Slightly clouded	Abundant
9 A	July 29	Approx. 66% drones, 33% workers	Slightly clouded	Not examined
9 B	July 30	Drones, 1 worker	Clear	None
10 A	July 29	All drones	Clear	None
10 B°	No eggs	....	Clear	None

* Calculated from age of brood subsequently found.
‖ Queen not found, many eggs in queen-cells and in worker-cells.
† Queen not found, 1 egg in side of worker-cell.
‡ Queen not found, no brood.
° Queen found balled, Aug. 7, but could fly.

Note.—None of the drones that met these queens could have emerged before July 10 nor after July 21. The drones were therefore from two to 13 days old on arrival at Duck Island, July 23.

they had gained but little in weight. The number of drones appeared to have been somewhat reduced, but those that remained flew freely.

In 11 of the nuclei, the queens were found to be producing drone brood of which the most advanced were just capped or about to be capped. In one nucleus there were no larvæ but only eggs, which afterwards developed into drones. In three, the queen could not be found; one of these had one egg on the side of a worker-cell; another had a number of eggs in a queen-cell and in several worker-cells; both these nuclei probably contained fertile workers. In the remaining nucleus, the queen was found balled and not laying yet, but able to fly.

Subsequent examination at Ottawa on Aug. 9 and 14 showed that six of the drone-breeding queens were producing workers as well as drones. Three of these that it was estimated were producing from 33 to 50 per cent workers, showed, postmortem, a nearly clear (slightly clouded) spermatheca. Under the microscope the spermathecal fluid contained numerous sperms, but evidently far fewer than the completely clouded spermatheca of a properly fertilized queen. In the brood produced by the other three queens, only one to four worker pupæ could be found. These three queens, as well as the six that produced drones only, had perfectly transparent spermathecæ in which no sperms could be found. Particulars of each queen are given in the table printed on the foregoing page.

The interpretation of the results appears to be as follows:

1. No colonies of honeybees exist on Duck Island and Yorkshire Island.

2. No drones from outside could reach the queens on Duck Island. (Honeybees were seen in plenty on July 25 at Point Traverse, located about seven miles away, and a small apiary was seen about one-fourth of a mile from this point.)

3. Only three out of the sixteen queens were lost, not a large proportion considering the wind blew fresh nearly every day from July 23, the day the bees were brought, until August 4.

4. Of the 13 queens surviving, 12 had started laying. Eleven of these had commenced to lay between July 28 and August 1, at the age of 12 to 16 days, and the remaining one on August 4 when 19 days old. All turned out to be drone-breeders, but six of them produced some workers.

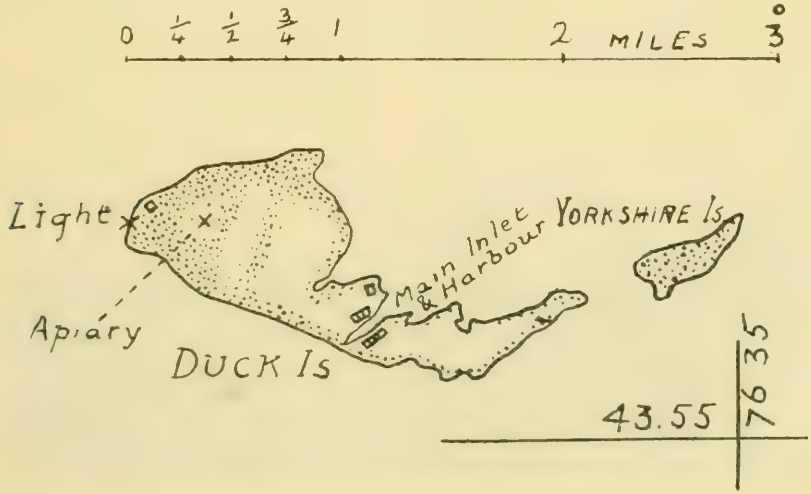
It is evident that all the six that produced some workers had been mated, altho sperms could not be found in three of them, and one of these produced only one worker.

It is probable that the six that produced drones only had also been mated, not only because their symptoms graded almost imperceptibly into those of the queens that had been mated, but also because in the writer's experience a queen that fails to get mated does not usually, if ever, begin to lay until she is considerably more than 19 days old.

5. The proportion of workers produced appeared to vary with the quantity of sperms present.

6. Evidently some accident had prevented the spermathecæ getting filled with sperms. The most probable explanation is that the drones were too young to fertilize the queens properly. Assuming that laying begins two days after mating, which the writer has always found to be true during the active season, none of the drones flying at the time the first queens were mated were less than five days old or over 16 days old, and all the drones flying at the time that the last queen that began to lay was mated were at least 13 days old; probably many of them were a few days older.

On July 28 in five minutes, two or three drones from a lot that had been raised in a drone comb given to a colony on June 16, the same day as the Duck Island drone comb was given, were seen flying from a colony



Location of the queen-breeding experiment.

that had been isolated in the orchard at the Central Experimental Farm, but probably drones are not mature enough for successful mating until they have been able to fly for several days.

Another possible explanation of the accident is that the drones had been injured in some way. The drones were put into the nuclei singly by hand, and it is possible that thus handling them while immature, which it was noticed caused most of them to defecate, may have injured them.

The fact that the queens were eight days old before they were allowed to fly may be considered as a third possible cause, or a contributing factor. This however, is extremely improbable because the writer formerly mailed to beekeepers a great number of virgin queens, most of which were not introduced until several days old, but they were never reported as becoming drone-breeders; indeed many of them became mothers of very productive colonies.

The large twin nucleus boxes, containing on each side two well-secured Langstroth frames and a space for another, with four ventilation holes, that were designed for this year's work and used this year, have proved far more satisfactory than the twin ''baby'' nucleus boxes containing on each side two combs one-third Langstroth size, used in 1918 at Kapuskasing in northern Ontario. The extensive swarming out at Kapuskasing and the overheating on the return journey from there that caused much loss last year with the ''baby'' boxes, did not occur at all this year, but the steadier temperature on Duck Island helped to prevent swarming out. The present form of nucleus box can hardly be improved upon.

The experiment was planned and carried out by the writer, who is also responsible for the figures and conclusions given.

Ottawa, Can.

[There are times when some of our young queens are found laying eggs, part of which are drone eggs; yet, at the same time, the conditions are such that we would expect them to be laying worker eggs only. I had supposed that such queens were not completely fertilized but did not know the reason for it.

Mr. Sladen's finding regarding the mating of queens to immature drones would seem to be a plausible reason.

It would be valuable to know just how old these drones were at the time the virgin queens were ready to take their mating flight, which would have been about July 23. The drone comb was given to a colony on June 16, and if eggs were laid in it within a day, they should have hatched about July 10 and would have been 13 days old; yet they were still hatching on July 21. We are taught that the worker bees are about 17 days old when they begin going to the fields. The drones are slower at maturing while in the larval stage than the workers, and they may require a longer time to reach full maturity after emerging from their cells than do the workers.

There are many problems which can only be solved by experimental work conducted on an isolated location such as Prof. Sladen has chosen; and we know of no one better qualified for this work, as he has that rare gift of observing the thing that the rest of us overlook.—Mell Pritchard.]

[While the experiments recorded here by Professor Sladen are somewhat inconclusive from the fact that we are not able to prove whether the trouble was wholly with the queens or drones, or with both, there are enough data furnished to make it appear that, in order to function properly, the drones should be much older than most of us have believed. We hope that the experiments may be repeated next year. This is the first time, if we are correct, that **really scientific** experiments like this have been conducted on an island where there are no bees. While D. A. Jones of Beeton, Ontario, Canada, in 1883 and '84, had three islands for mating queens of three different races, up in Georgian Bay, his only object was to get queens in their purity for commercial purposes only. The project at the time was too expensive to make it a paying one. There was no honey to be gathered by the bees on the islands, and the bees had to be fed sugar syrup.

Mr. Sladen is an expert queen-breeder; and if he can bring his experiments to a definite final conclusion, the beekeeping world will owe him and his station a tremendous debt of gratitude.—E. R. Root.]

Scene along the Duck Island shore.

FROM THE FIELD OF EXPERIENCE

THE OVERSTOCKING THAT PAYS

How More Bees Can be Profitably Kept in a Locality Already Well Stocked

There are many persons who would like to increase their income from their bees, but do not care to start an out-apiary, nor overstock their present location. Most beekeepers of limited experience have a wholesome fear of overstocking their territory, altho there are some who seem to think there is little danger of overstocking their neighbor's territory.

There is little doubt but that five colonies will do better in any given location than fifty and fifty better than one hundred. Just how many may profitably be kept in one location is, I confess, something of a puzzle. After many years' experience I have come to the conclusion that the number of colonies might often be largely increased with profit to the owner, if wisely managed. In most localities suitable for commercial beekeeping there are at least one or more sources of honey that are for a part of the season very abundant; and all colonies in good condition as this season comes, are quite sure to secure sufficient surplus to repay well the enterprising beekeeper for their care.

Perhaps I can not do better to illustrate this subject than to give our own experience. Our main dependence for surplus is clover, alsike and white—our only source of surplus, I might well say, altho, once in 25 years, I suppose, we get some buckwheat honey. In average seasons, we get also some dandelion honey stored in the brood-chambers. There are other sources of honey, as willow, maple, fruit bloom, raspberries, goldenrod, and asters, that would support a few colonies, but when divided among a hundred amount to but little. I thought formerly that 75 or 80 colonies in one place in spring were about as many as could be kept with profit, altho we then had a good supply of basswood. Our season for clover is short, not averaging over four weeks, yet I have noticed that strong colonies are able to gather sufficient surplus for a paying crop.

Now it might seem a very simple matter to keep a large number of colonies together, if all that is needed is to get them strong by the time clover begins to yield nectar, but in practice we do not find it so. Where there is a light flow of nectar during May or only a few colonies are kept, they may do very well; but where there are a large number in one place they must be watched closely, and, if there is a dearth of honey, stores must be supplied. A few years ago we had a rather cool May, and bees could fly but a short distance from their hives. As a result, a great number of colonies by the last of the month or early June were in a starving condition, where kept in large numbers in one yard; while where only a few were kept together they were in fine condition. By feeding heavily we saved our bees in large yards and had a successful season, for as soon as clover opened there was enough for all.

Last year we had in one yard 200 colonies in the spring and we could see little difference in the average per colony in this yard and in the yard where there were one-half as many colonies. Where clover is abundant and yields nectar freely, it would seem as tho almost any number of colonies would find enough to store a fair surplus. But when the clover fails there is trouble, unless the beekeeper is on his job, for there will be flowers enough for only a few colonies.

Let me illustrate by our experience the past season. Very little honey was stored after July 20, while the brood-combs were so well filled with brood that a comparatively small amount of honey was stored in them for winter use. Brood-rearing continued during August so that much of the honey stored was consumed, and by the middle of September many colonies were in a starving condition—in fact, some of them did starve. As usual, we have had to feed a great amount of sugar to carry our bees thru the coming winter.

One yard, which consisted of 140 colonies in the spring, we have had to feed this fall more than a ton of sugar besides some honey; but we secured from this yard several tons of honey, besides increase enough to pay for all the sugar fed to the colonies. Had we kept only enough bees in this yard so they could have gathered sufficient honey during the latter part of summer to winter on, we should have had to be content with a very small income from the yard.

Thus we see that by watchfulness and by supplementing with sugar syrup any weakness or failure of our locality to supply the needs of a large yard of bees, we may still be able to keep a large number of colonies in one place and secure a much larger profit than would otherwise be possible. Where buckwheat, goldenrod, asters, and swamp flowers abound the matter is much simplified; where these or other flowers are lacking, we must be prepared to make up the deficiency with sugar and bank credits—but it pays. J. E. Crane.

Middlebury, Vt.

[Mr. Crane should not be misunderstood in the above article. He certainly does not advocate a general overstocking of locations. As he says in the opening paragraph,

FROM THE FIELD OF EXPERIENCE

"There are some who seem to think there is little danger of overstocking their neighbor's territory." Right there is where the trouble arises. If one considers that a smaller average from a larger number of colonies will net him a greater income, and if he can increase the number of colonies without injuring his neighbor, then such action is entirely his own business. But, alas! it happens all too often that in the mad scramble for dollars, little thought or consideration is shown neighboring beekeepers, to whom in many cases long years of priority have given the moral right to the location.

We have recently been receiving letters from various parts of the country showing that overstocking is now becoming a real problem to many beekeepers. A well-known beekeeper has lately written us that he has actually been driven out of the business and has been compelled to take up queen-rearing instead of honey production because of other beekeepers who have gradually been moving in on his territory. Is it any wonder that in some parts of the country a very bitter feeling has arisen toward the newcomers? Remember that the crop of honey is the man's bread and butter, and he may be so situated that he can not move away. If any one with the slightest sense of justice or fair play will only put himself in the other man's place, he certainly will not care to lower himself by crowding out or stealing another's location.

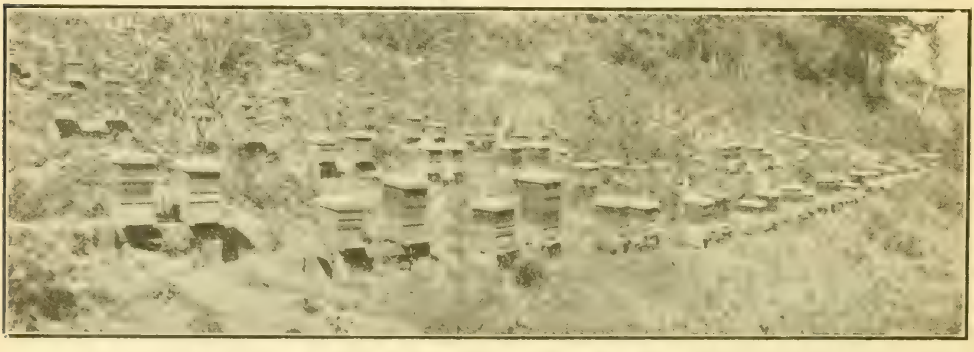
For those who are now obtaining too small a crop, of course, the logical solution is to move to an unoccupied and better location. Mr. Crane's excellent advice, however, as we have previously stated, is intended for those who are unable thus to better their condition and who can increase the number of colonies without injuring their neighbors. There is more of value in this article than appears at first glance. It is well worth reading a second time.—Editor.]

BEEKEEPING IN THE NORTHWEST

What the Country is Like and How Beekeeping Varies There

That the great Northwest is an empire in itself, "with conditions more varied than any other part of this great United States," may seem to some a surprising assertion, but true nevertheless. Mountains and plains, rivers and lakes, humid and arid, fertile and desert, temperate and extreme, all can be found in the great Northwest; and such a conglomeration of conditions necessarily existing in such varied localities would in itself raise a doubt in the minds of those who understand the keeping of bees, as to whether honey could be produced in quantities sufficient to be of interest to commercial producers. In other words, can it be done, or is it being done? This may readily be answered. Yes, in some parts, depending largely, as in every other part of the U. S., on the ability and care of the individual beekeeper. It is a well-known fact that some always secure crops in larger quantities than others in the same or adjacent territory; so while locality has a great deal to do with it, success depends on the man behind the gun. I understand that in the eastern part of the great Northwest, the beekeeper's sole dependence is alfalfa; but since I am not sufficiently familiar with conditions in the eastern part to give intelligent details, I shall attempt to give some ideas as to honey production in the Northwestern and humid belt of the territory, known as the Coast Range and Cascade Range of mountains, between which lays the beautiful Willamette Valley.

On the Columbia, over 30 years ago, I noticed bees working on red clover in **November.** The weather had been wet and was then quite cold, but there they were; and if anything will stir an enthusiast's blood any quicker than seeing bees working under difficulties, I don't know what it is. Just as soon as possible I looked up someone who offered the information, "Why, boy,



Ideal fireweed location in the Pacific Northwest.

the woods is full of bees.'' My interest being then at boiling point, I lost no opportunity to investigate. The statement as to all the woods being full, I found to be untrue; but sure enough, many bee-trees were there and of all sizes. Most of the beekeepers of the Middle West never saw a real Oregon tree in the thick timber, 8, 10, 12, and even 16 feet thru at the butt, straight as flag poles and not a limb within 100 feet of the ground. Some bee-trees, eh? But generally the bee-trees were snags and cottonwoods near the river.

All domesticated bees found then were in box hives about 12 x 12 x 14. Some honey of inferior quality was sometimes secured in ''Caps.'' No one knew of a movable-comb hive or seemed to care for better methods; but finally I had made for me a movable-comb hive. It was a success from the start, and the bees in it wintered well and gave some surplus in homemade sections. The stumbling block at that time was the tremendous winter losses. Those who had bees seemed to expect such losses and reported that the reason was mouldy comb. Upon investigation I found mouldy was right, and I attributed it largely to the excessive moisture of the winter. Later I discovered foul brood was the cause of the death of the small colonies, the combs moulding afterwards. You couldn't make the ''old timers'' see it then; but new methods proved it, and today winter losses are comparatively nil, and the industry is on a paying basis. If weather conditions were good when we wanted it, this would be a beekeepers' paradise and their bank-rolls fat. I shall give one instance:

A typical fruit-ranch home and fine bee location in the mountains near Portland, Ore.

The month of April, 1918, was the driest April known in this section. Soft maple and vine maple blossom in that month, and, there being no rain to wash the nectar out, those who were prepared with combs harvested a crop in a few days. Those with none missed it and had to buy sugar (not an easy task) to winter their bees. As 1918 will go down in history as one of the years without surplus, virtually no white-clover honey was secured. The mountain beekeeper also had a short crop, but yours truly had plenty of good sealed honey and needed no sugar.

Bees generally gather some pollen in February and unless weather conditions are very bad build up into fair colonies by the end of March. Plenty of rain is the rule in spring, and in some years but little or no honey is secured, even when hundreds of acres of fruit trees are in full bloom for weeks; but, if weather conditions are at all favorable, some early super honey from fruit trees is secured from the strongest colonies

In April swarms are not uncommon, and bees are generally booming by May. June brings white clover and generally better weather, assuring at least some first-class honey; but many times rain has persisted all thru June into July, and the hopes of the beekeepers have gone a-glimmering, as far as surplus is concerned.

We can bank on settled, clear weather after July 4, and then it rarely rains until September. In the meantime clover dries up, and the local bees have to depend on berry and later blossoms. From ten days to three weeks is the time we really get for surplus here; so here as elsewhere, it is the ready and alert beekeeper who succeeds. Many ask what is the average crop secured,

FROM THE FIELD OF EXPERIENCE

It is safe to say not more than 25 pounds of section honey.

Our bees seem to have become acclimated and fly and work under adverse conditions. I have seen them at work when the thermometer was close to 40 degrees. And they frequently work out in the rain. In January generally there are many days the bees can and do fly. In February some pollen is brought in from willow. In March an early crop of dandelion furnishes enough to boost breeding. In April the soft maples, and later vine, are fine honey-yielders. In May fruit blossoms; in June white and alsike clover; in July late berries blossom and general flora; but after July 10 the honey flow is negligible. No fall crop here is dependable and colonies do not gain any in weight or quantity—rather the reverse.

Handling or methods employed differ here as elsewhere. Some rarely fail in getting some results; others rarely get much, if any. In my own experience, I find success depends on eliminating swarming. **As you all know** how, I need offer nothing on this; but I have good success by adding an extra brood-chamber to each colony, thus securing a tremendously strong colony.

As new appliances are used, doubtless others find different results, necessitating different methods. For instance, the seven wires in the new honey-boards permit the bees to pass thru so readily and with such little interruption that often the entire brood-chamber is used for brood only, and nearly all the honey is placed above. With the old-style zinc it was often otherwise, and in some instances the lower chamber would be honey-bound; but a few honey-bound colonies are not bad property if stores are short in others. Bees are wintered on summer stands; no cellars here, no bee-houses that I know of, and if the hives are well sheltered from the winter rains, heavy colonies come thru strong. Many schemes have been, and are now tried, to eliminate mouldy combs. What works sometimes, fails other times. Frequently I find the strongest colonies have more mouldy combs than lighter ones. For years I have wintered late nuclei on five frames, and these generally show no mould at all. The boys who had the nerve to try out migratory tactics this year won out big. Many are leaving all their colonies in the mountains, as the locations are dependable. I shall give one instance only, that of a young couple, both of whom work at a trade. They had one day off a week and owned a few colonies. They increased and bought up to 40, moved these to the hills in July, and got a crop of over a ton of fireweed honey.

But another instance in 1918: When there was nothing in sight here, one took 100 colonies 30 miles to the hills where the whole mountainside was pink with fireweed. However aphis appeared and paralyzed things, and the bees were brought back starving by a sadder and wiser man. Still I have faith to the utmost that in this part of the great Northwest, we have a real God's Country, a good bee-country, the finest water on earth, no extremes, cyclones unknown, but months of disagreeable, wet weather that harasses Easterners. In eastern Oregon and Washington weather conditions are more like the Middle West, with hot and cold spells and less rain at all seasons. E. J. Ladd.

Portland, Ore.

* * *

A SWARM-PREVENTION PLAN

Provide Ample Room in the Brood-Nest for the Queen to Lay

From my experience I have come to the conclusion that swarming is brought on more often from this one cause than any other, insufficient room for the queen to lay **in the brood-nest.** Now, I can imagine somebody saying, "Oh! but that is nonsense, for I have frequently opened a hive immediately after a swarm had left, and found plenty of empty cells in the brood-nest." That may be so; but you must remember that the queen lessens her output of eggs a few days before the swarm leaves, so that her body may be lightened to enable her to fly. I emphasize **in the brood-nest** because in hives composed of shallow cases, such as the Heddon, queens sometimes refuse to pass from one case to another unless one spreads the brood either up or down. This is why the bottom case is often ignored by the bees.

I believe it is a mistake to suppose that there can be too great a force of workers. The larger the number over and above those necessary to attend the brood, the greater the quantity of honey stored. To remove **hatching** brood, therefore, is to decrease the proportion of workers and to take away a large number of cells which would have been almost immediately available for the queen to lay in.

I suggest that all **unsealed** brood be removed at regular intervals, giving it to a few strong colonies kept especially for the purpose, to be taken care of. In its place give back frames of **hatching** brood previously taken when unsealed. The result will be an enormous force of workers and an abundance of room for the queen to lay. Care must be taken that there be ample super room, as such a force of bees will store rapidly; and if super room is insufficient they will put honey in the brood-nest, and so bring on the very condition we are endeavoring to prevent. If a honey flow is on, it might be better to give foundation rather than hatching brood in the brood-chamber. In that case the hatching brood from the nursery colonies would come in handy for making nuclei, building up weak colonies, or forming new ones. B. Blackbourn.

Melbourne, Australia.

SIFTINGS

J. E. Crane

It was a red-letter day the latter part of December when, with two other men interested in bees I rode to Somerset, just out of the city of Washington, Md., to visit the field laboratory and apiary of the Bureau of Entomology. Dr. Phillips and Mr. Demuth were just back from a trip of several weeks to the Southwest and Pacific Coast where they had been holding institutes or schools for advanced beekeepers in various places. Their enthusiasm over the outlook for the future of beekeeping was great. Dr. Phillips estimated that the future possibilities of honey production in our country when fully developed would be ten times the present output.

* * *

The old story in the book of Samuel concerning Jonathan's gathering up honey that had dripped from trees has seemed somewhat exaggerated, but Dr. Phillips tells how the honey or nectar is sometimes so abundant in the orange groves of California that it drips upon those cultivating them so that they have to change their clothes and sponge down their horses to get rid of the honey. If honey was as abundant in New England, I think we would find some way to gather it into our hives.

* * *

The apiary at Somerset, belonging to the field laboratory of the Bureau of Entomology, is nicely located to the north of the house, while close by to the west and north is a thicket of forest trees, largely evergreens. The grounds include, I should think, about one-third of an acre. Notwithstanding the sheltered position of the apiary I found the hives had been placed in large boxes, four in a box, and heavily packed with sawdust, leaves, or other non-conductors of heat. The entrances were reduced to one small hole, that I judged to be about five-eighths of an inch in diameter, but so arranged that a larger entrance could be given at the coming of spring. The conditions for wintering seemed ideal, but I should fear the heat in summer would be pretty severe for those at work in the yard.

* * *

Speaking of feeding bees sugar for winter feed, Dr. Phillips said that while bees have the power when fed slowly to invert sugar so as to prevent granulation, they do not always do so; so it is safer to use acid or honey with the sugar syrup. This had been especially true in the West where large quantities of sugar crystals have been carried out of the hives by the bees. This seems very strange to me, as we have been feeding tons of sugar as a heavy syrup often late in the season and just as fast as they would take it down and store it in their combs. I can account for it only by the possibility that where trouble has occurred bees have been fed beet sugar instead of cane sugar. Why there should be any difference I can not tell, but we know that housewives prefer cane sugar for certain purposes. Also candy manufacturers prefer cane. Further, we have understood that British beekeepers are much prejudiced against the use of sugar made from beets. [We have fed tons of sugar, either beet or cane, as a heavy syrup late in the fall and have had no trouble whatever from granulation.—Editor.]

* * *

I have great respect for the captain of a ship who can take his vessel out of one port and anchor it safely in another, it may be thousands of miles away, while ocean currents tend to force it in one direction, tides in another, and winds and waves in still another. So well is the skillful navigator able to master and solve this composition of forces that he is able to leave one port and reach another, thousands of miles away, with surprising accuracy.

Since coming to Washington I have become acquainted with two or three persons connected with the Bureau of Crop Estimates of the Department of Agriculture, and have come to appreciate their work as never before. Their work seems, in some respects, like that of the navigator. They gather up statistics from all sections of our great country. They have to make allowances for drouths and floods, for insects and blights, for frosts and summer heat, and, above all, for the imperfections in the reports of their reporters; and yet, so skillful have they become in this line of effort, that they are able to make very accurate estimates of the staple crops of our country long before they are harvested. So valuable and reliable have these reports become that when about to be made public the halls of the buildings are thronged with reporters and others desiring information; and for one or two nights 20 or more clerks and officials are locked up in the building that the reports may be given out at the same time to all, and thus the speculator have no advantage over the farmer.

Shall not we beekeepers who report on honey-crop conditions see to it that our reports are such as will help these experts to give us accurate estimates of our crops of honey from year to year?

* * *

I am glad that Mr. Warren has proved "beyond the possibility of doubt" that bees are most efficient agents in the fertilization of alfalfa, as told recently by E. R. Root. Again and again we see the value of bees, aside from the storing of honey or making of wax.

OUR FOOD PAGE

Stancy Puerden

WHEN a certain nice man with an ingratiating smile calls at our home I always know he has a dull axe concealed somewhere about him. Sometimes that axe takes the form of a few honey recipes which he would like to have me invent; sometimes he would like a few honey candies or honey cakes to display at a food show; sometimes it is an article on honey which he wishes written.

But one day, when neither of us happened to be quite so busy as usual, after he had secured a promise from me to sharpen his axe we fell to talking of the food value of honey, and he told me a couple of true stories which I am going to pass on to you. He said, after telling me the stories, ''Mrs. Puerden, I have not dared to make these stories quite as strong as they were told to me.'' He knows I very much dislike to have statements as to the food value of honey exaggerated. The truth about it is quite good enough, and if we permit ourselves to claim too much we are only weakening our case.

YEARS ago this man, who has been connected with the sale of honey nearly all his business life, sold a few pounds of candied honey in the brick form to a Cleveland grocer. Honey in this form was rather a novelty at that time, and there was little call for it unless in a vicinity where it had been demonstrated. The grocer put it on his counter and there it stayed. His customers had never heard of it; they were not interested and declined to try it. Months later the weather grew warm, the honey began to liquefy, and pretty soon it started to leak out of those one-time neat packages on the counter. About that time the grocer, like the weather, grew warm under the collar and he sat down and wrote my friend, whom we will call Mr. Honeyman, a warm letter.

Mr. Honeyman admits that he was not as wise a honey salesman then as he is now, and he therefore refused to take the honey back, for the reason that he had sold the grocer a good article in perfect condition and was not to blame for its deterioration. For a year or two after that he heard nothing more from the offended grocer.

Then one day when he had charge of a honey exhibit at a food show a man came up to him and said, ''Mr. Honeyman, do you remember selling me 16 pounds of 'honeyspred' some years ago, which you afterward refused to take back at my request?'' Mr. Honeyman remembered it, and I imagine his feelings were not particularly joyous at this unexpected reunion with a dissatisfied customer. But the grocer had not come with a tale of woe, as you will see. He went on with his story thus: ''Just about the time you refused to take the honey back my health broke down, and I decided to go out of the grocery business. I was troubled with indigestion and was in a much rundown condition. When I sold out I decided I was not going to sting my successor as I had been stung, and I therefore carried that despised honey home and put it in the kitchen. In so doing I got a little on my hands as the sticky stuff had oozed out of the package, and I put my fingers up to my mouth.''

Isn't that just like Charles Lamb's story of how roast pig was invented?

To resume the grocer's story: ''I discovered that the honey had an unusually pleasant flavor, and I began to use it freely on the table. I decided I was going to die anyway and might as well hasten the process by eating what I liked. I used one pound after another, with plenty of whole wheat bread, until the whole 16 pounds were gone. By that time I was feeling better and had acquired such a taste for honeyspred that I hunted groceries where I could buy more, and from that day to this honey has been almost constantly on our table. I am now perfectly well, able to work hard, and believe that honey had more to do with my restoration to health than anything else.''

Someone may think that this grocer was over-enthusiastic, that change and freedom from care improved his health, and that his diet had little to do with it. Draw your own conclusions. I have told the story just as it was told to Mr. Honeyman. For anything we know to the contrary, the ex-grocer may have engaged in some other business which was more strenuous and confining than the one he sold.

THE other honey story came to Mr. Honeyman while he was in charge of a honey exhibit in California. A robust, fine-looking man came to him, and in the course of a conversation said, ''I wonder if you fellows realize what a valuable food you have in this honey.'' Mr. Honeyman thought he did, but intimated he would not object to further enlightenment on the subject. Then this man went on to tell him how he came to California several years before this time, hoping to recover his health, which had failed until he was unable to do any work. He went to friends who lived on a ranch in the foothills, and those friends kept bees. Now you know the rest, don't you? Naturally he began eating honey, and he ate more and more of it, and then he began to gain in flesh and strength and kept building up until he was the picture of health. He also ate whole wheat bread with his honey, and like the grocer he attributed the recovery of his health to the honey diet.

Now you know and I know that any patent-medicine manufacturer can find gullible people who can be induced to give him testimonials as to what his medicine has done for them. But the point that makes these stories so convincing is the fact that probably neither of these men used the honey with the idea that his health would receive any benefit from it. If a patient begins any course of treatment with faith that it will help him, it is almost certain to do so to an extent.

But the grocer not only had no faith in honey as a health-building food, but even had a prejudice against it, believing he had been stung. Also, neither of these men was solicited for testimonials, and had not been in the least interested in the honey business.

Practical Hints.

While most of the following timesaving hints are not new, I find so many housekeepers who do not know them that I am giving them a place here:

To measure accurately hard fat, such as butter, lard, or hardened vegetable fat, try the chemist's way. For instance, if you wish ¼ cup of fat, fill a measuring cup three-fourths full of cold water and then put in fat until the cup is full. Push the fat down so it will adhere to the sides or bottom of the cup, and when the water level reaches the full mark pour it off. This is much quicker than trying to crowd the hard fat into the cup compactly enough to measure it. Remember there are 16 level tablespoons in a standard half-pint measuring cup.

If you wish to pare potatoes a number of hours before you cook them, prepare them as usual, rinse them, and put them in the cooking utensil with a folded towel over them and tucked down closely at the sides. If they are covered with water for that length of time, they lose food value and tend to become water-soaked.

Before washing your meat roaster put in a teaspoon of sal soda or washing soda, add water, cover, and put over the burner until the water has boiled. This will cut the grease and loosen food particles which have dried on the surface. Other greasy cooking utensils may be treated in the same way except those made of aluminum.

Have plenty of asbestos mats in your kitchen. Those covered with sheet iron and with handles are durable and convenient. They eliminate all but a minimum of watching and stirring and save food and utensils from being ruined by scorching.

Worn Turkish bath towels may be made into convenient kitchen holders. If they are small, two may be put together, or a large one may be folded in the middle or cut in two and hemmed. They are easily laundered, and their size enables one to lift heavy baking dishes with both hands.

After washing your lettuce, dry it for salad by centrifugal force, on the principle of the honey extractor. Put it in a large square of clean cheesecloth, old muslin curtain, or any other thin cloth, step outside, and whirl it around your head. It will dry quickly and evenly.

If you wish to cut a brick of butter smoothly, without crumbling, wrap a sheet of oiled paper around a dull knife.

When you are about to fry food, stop and ask yourself if you could not do it more easily in your oven. Many foods commonly fried are just as palatable and more digestible baked, and the cook is saved unpleasant work and an unbecomingly flushed face. A number of the following recipes are for foods baked instead of fried.

BAKED BACON.

Slice the bacon very thin and arrange on a rack which is fitted into a pan wide enough to catch the drippings. Bake in a rather quick oven until done to taste. Bacon is much more delicate cooked in this way than when fried in its own grease, and the fat which tries out is white and well flavored. When bacon is fried the fat is darkened and the flavor of it injured. An ordinary wire cake cooler makes a very good bacon rack.

BAKED SAUSAGE.

Bake the sausage as in the preceding recipe. If you have no rack, it may be baked in an enameled pie plate if the fat is drained off several times in the baking process. Baked sausage will not burst as it does in frying.

BAKED LIVER AND BACON.

Liver	Pepper
Bacon	Salt

Have the liver sliced rather thin and parboil it by covering with plenty of boiling water, bringing it just to a boil and then draining it. On a flat baking dish arrange the slices of liver, season slightly with pepper and salt, cover each slice with thinly sliced bacon, and bake in a quick oven until the bacon is done. If preferred, the liver may be floured lightly after parboiling it.

PIGS IN BLANKETS.

Oysters	Lemon juice
Bacon	Pepper and salt

Wash large oysters, season lightly with lemon juice and a very little salt and pepper, wrap each one in a very thin slice of bacon, skewer with a toothpick, and bake in a hot oven until the bacon is crisp. Serve at once.

BAKED RABBIT.

Rabbit	Flour
Savory cooking fat	1 tablespoon vinegar
Minced onion	Salt and pepper
	Water

After cleaning and cutting the rabbit in suitable pieces for serving, soak it in salt water for several hours, drain the pieces, roll them in flour, season, and arrange in a covered roaster. Dot the pieces liberally with a savory fat, such as sausage fat. As rabbit is a very lean meat much more fat must be used than for chicken. Pour over cold water until you can see it, add a tablespoon of vinegar and a little minced onion if the flavor is liked, cover, and bake until

(*Continued on page* 117.)

Beekeeping as a Side Line

Grace Allen

SOMEHOW I can't think Gleanings without Dr. Miller in it. I don't want to. Yet how much better to miss him in Gleanings, knowing he is gradually getting stronger there in Marengo, than to think of him as lying ill, as we have had to do for the last few weeks. Most heartily and earnestly do all of us, sideliners and mainliners alike, wish you a speedy return to health and vigor, Dr. Miller. Personally and professionally, you mean a great deal to all of us, more, undoubtedly, than you realize.

* * *

Imagine how the sideliners at the annual Tennessee Beekeepers' Convention felt when they heard J. J. Wilder of Waycross, Ga., admit that now he has 10,000 colonies! One of them felt exactly like that famous minnow that went ''swimming with a whale.'' Ten thousand colonies is—well, it's a lot. Division, nuclei, purchase, almost any way that will make increase, is his method when increase is what he wants. And it has been pretty steadily what he has wanted. Simple division of colonies has been perhaps the favorite method. Then when Mr. Wilder begins to feel restless and cramped, and as tho he didn't have much of a bee business anyway, and must spread out a bit more, he takes his grip and goes off a hundred miles or two. There he starts a new apiary, builds up a lot of outyards for it, and leaves a good man in charge, to receive an attractive share of the crop. He always knows right where to go, because he keeps ahead of this expansion business by always having locations in mind, that he has already investigated; so that his problem resolves itself into, not, ''Where can I put these bees?'' but ''Where and how shall I get the bees to stock that location?'' So as soon as he gets the bees, he puts them there, gets the honey and sells it, and after a while, there you are—a 10,000-colony business. But a man has to use his head to do it, and sometimes he lies awake thinking about it all, Mr. Wilder admitted. And we sideline beekeepers sighed and thought it likely. Mr. Dadant, who had visited several of Mr. Wilder's yards, suggested that one reason for his success was his wise choice of men and his equally wise arrangements with them, arrangements that leave the men contented and interested.

I believe Mr. Wilder was downright shocked to find that I was really and truly only a sideliner! He urged me to increase and spread out. When I'm at a beekeeper's convention, I am always right on the verge of doing that very thing. Last year when I left the National, I was all ready to grow into a real whale of a beekeeper, with wild fluttering little visions up my sleeve of Mr. Allen leaving his own work and the two of us going together to some famed honey-producing spot—Ontario, Upper Michigan, California, or possibly the Balkans! But somehow when I get home, a score of other interests fairly spring at me, books and friends and church and clubs, a neglected but wistful typewriter, and the dear home itself, until gradually the beekeeping becomes frankly a beloved sideline again. Yet if a few more big conventions and a few more 10,000-colony beekeepers cross my path, no one can say what rearrangements might be made. Let me hereby warn all other sideliners too, and all beginners—if you don't want to become enthusiastic about this bee-and-honey business, and don't want to be troubled with insistent visions of how big a thing it might become, don't go to conventions. No, nor read many journals. They are all almost uncomfortably inspiring.

Porter Ward, the successful retiring president of the State Association, is always a real inspiration to sideline beekeepers, because he has made such a splendid success of it himself. A farmer first, he has done so well with his beekeeping that none of us will be surprised if some day we learn that it has become his chief occupation.

This year Tennessee was again favored at the convention by the presence of C. P. Dadant, and again the large brood-chamber became the subject of discussion. Dr. Herbert Sanborn of Vanderbilt University led an unexpected movement in favor of the Danzenbaker hive. A show of hands proved that very few in the audience had ever tried the Danzenbaker, and these seemed not to follow Dr. Sanborn's leadership in defense of them. It occurred to this sideliner, listening, that hives and frames, in their different styles and sizes, are much the same as different kinds of people. They all have some good points and some bad. One beekeeper, having accommodated himself to one hive, shapes his systems and methods to it, and learns to take full advantage of its good points and disregard its faults. Another, impressed chiefly by its faults, will have none of it. Which is, indeed, quite consistently human. Why expect unanimity on beehives when it couldn't possibly be secured on any other question? The men in any room outside a denominational or party gathering would differ utterly, almost hopelessly, on point after point in their politics and their religion—or, more properly, their theology. (I cannot resist here recalling how Lyman Abbott distinguishes between these two so-different things. Religion, he says, is ''the life of God in the soul of man;'' while theology is only what men think about it. Some day, some far-off golden day, we shall drop our little theologies and know ourselves one in the holiness and power, the reverence and service, of religion.)

Coming back to our convention, tho, Dr. Sanborn, who is head of the Department of Philosophy at Vanderbilt, gave us a most impressive paper on "The Present Status of the Problem of Heredity." I was interested in one question he let drop, unanswered: "Do bees gather more now than in primitive times?"—meaning, of course, bee by bee. Undeniably, modern beekeeping methods have brought about a higher average colony surplus, but do the individual bees gather more, Dr. Sanborn wonders. Dr. Miller is a famous exponent of the theory that by breeding continually from the best, one can build up a better honey-gathering strain. On that theory, there should sometime come a day, even tho it be not yet arrived, when the bee can gather more nectar than its primitive ancestor.

Kennith Hawkins of Watertown, Wisc., talked on that most important of all subjects, "Getting a Maximum Yield," emphasizing once more the dictum, "Get your colony strength to its greatest in time for the big flow—not some time later."

Then we continued in office for another year our able secretary, Prof. G. M. Bentley, State Entomologist; while as president and vice-president respectively we chose two comparatively new names in our beekeeping midst—O. R. Reichley, Dyersburg, and Prof. Floyd Bralliar, Madison Station, Nashville.

* * *

I was interested in what Mr. Parks said in the January number (page 31) about the apple and peach trees of Texas blooming for short periods in the fall. Prof. Bralliar, our new vice-president, told us at our convention, that the elms in this locality were in full bloom last fall, and that their bees securred some surplus from it. It was news to many of us that our elms ever did bloom in the fall, but he assured us it was true last fall not only of elms, but also of catalpas and some pears, and expressed natural surprise that we had not noticed it. He brought a jar of this fall honey with him, calling it elm honey, tho admitting it was mixed to some extent with nectar from other sources. It was somewhat dark with rather a strong flavor. [According to that very good authority, J. H. Lovell, elms yield no honey but do yield pollen and quite often honeydew.—Editor.]

* * *

Has anybody noticed that I haven't said a word about wintering this season, not a single word about packing? That's not the worst. I haven't done a bit of it, either. That wasn't intentional, tho. It just happened. Refraining from the written remark was intentional. One thing I must say, however, in passing. The four colonies that wintered 1918-19 in the one quadruple case we possess, and in which last winter we used the two-or-three-little-hole-entrance advised by Dr. Phillips, showed right up to the top notch in honey production; that is, they were among the very best in the yard. There were other colonies that did as well, but no other four right together than ran as well as this four. They were about even one with the other, and all as good as the best. That's something, isn't it? We intended using the case again, and trying to get a better grade of chaff, as what we got last fall was not much better than straw. But we kept waiting, waiting, for the carpenter to get the fence built in the new place, as we have to move the bees; and presently it was December, and they were neither moved nor packed. But we did put mouse-excluding wire across every entrance and so hope to avoid the sad experience of finding mouse-ruined combs next spring.

* * *

The year 1919 closed mildly. Up to the end of December there had been no severe weather, tho we had experienced a few of those sudden changes that so disturb both human and apiarian tranquillity. Then how 1920 did jostle 1919, the night of December 31, when they met at the gate. The last time I looked at the thermometer on our porch in 1919 was at half past seven the last night, after the sun had set and dark had come with her chill. But there was the mild old year gently registering 64 degrees. The next noon, in the warmest part of the day, the mercury had been pushed down to 34 degrees by the scornful young year, riding a wind from the west. And notwithstanding the gay fire in my grate, the air from the wide-open window struck cold and things crackled in the room. But it was a bright, sunny day, the kind one likes for New Year's Day. May 1920 be a bearer of much that is good.

* * *

Miss Flora McIntyre (page 38, January Gleanings) makes me a little ashamed that I have never even thought of trying to increase the becomingness of things in the beeyard. Perhaps it would be only honest to admit at the same time that I have the bad habit of dreading to think of clothes, anyway. I like them pretty and all that, if somebody else will just do the thinking about them and planning and making. That's why I mostly buy them ready-made. If someone would only start a factory for making becoming beekeeping suits and hats and veils, I'd promise to be a good customer. But that idea of splashy gay silk on the hat brim, drooping a bit over the edge and helping make soft shadows underneath for the eyes to rest in, this I like well enough to try it myself—tho alas, I have no lovely golden curls!

* * *

A "Boys' and Girls' Beekeeping Club," mentioned now and then, is a capital idea. With our exhilarating climate, children will be doing something. Why not get them interested in something useful, instead of wasting their time in play or in annoying their neighbors?

FROM NORTH, EAST, WEST AND SOUTH

In Northern California.—Our State has an enviable record in honey production; for not only has she a very high average production per colony, but she also continues to lead all other States in the quantity of honey produced. According to the Bureau of Crop Estimates of the United States Department of Agriculture, California produces more than twice as much as Texas, her nearest competitor; or in other words, our State furnishes 15 per cent of the total amount of the honey produced in the United States. Texas comes next with 7 per cent, followed by Iowa with 6 per cent; and then come New York, Illinois, Michigan, and Wisconsin, with 4 per cent each. California's average production per colony for the past six years is 60 pounds per colony. The average of other leading States is as follows: Texas 37 pounds, Iowa 57, New York 45, Illinois 47, Michigan 49, and Wisconsin 58. Ninety-seven per cent of our honey is placed on the market in the extracted form, leaving but three per cent as comb honey. There is no other State that produces a greater per centage of extracted and less comb honey than California. Last year the ratio was not so great, being 90 per cent extracted and 10 per cent comb. Outside markets take 85 per cent of our crop, there being no other State that is compelled to seek outside markets for the disposal of their crop so extensively as California. The marketing problem with her is much more of a problem than it is with any other State. We produce 15 per cent of the honey produced in the United States and must seek an outlet for 85 per cent of the amount. Texas produces 7 per cent and disposes to outside markets 60 per cent of her crop. Iowa produces 6 per cent and has only 20 per cent of the amount to dispose of outside the State. Obviously the marketing problem in Iowa is not a leading one. The three States, Illinois, Michigan, and Wisconsin, that produce each 4 per cent of the crop of the United States, have for disposal to outside markets respectively only 15 per cent, 25 per cent, and 28 per cent of their crops. Like Iowa, these States do not consider the marketing problem as a vital one. This problem is essentially a Western problem and concerns itself principally with California and Texas. Colorado, Idaho, and Arizona produce respectively 3, 2 and 1 per cent of the honey produced in the United States, and the disposal of the crop to outside markets is respectively 69, 75, and 68 per cent.

Of late there has been some discussion in the journals regarding the feasibility of federating the various marketing associations of the State into a central national body. In view of the above, the Eastern States have very little in common with their Western sisters, and an organization of this kind would more than likely result in failure. A federated marketing association of Western States would be more likely to prove a success; yet, even an attempted federation of this kind, at this time, in the opinion of your correspondent is unworkable. Nor does he believe that the time is near at hand when such an organization is necessary. California and Texas organized marketing associations because they had to do so. The speculative buyers had become very bold, and not a few used unscrupulous methods. Colorado and Idaho also found it necessary to organize. Arizona markets 75 per cent of her crop outside her boundaries and is today the stronghold of the speculative honey-buyers. Arizona will soon find out that she has to organize. Marketing associations do not come into being because they appear attractive to prospective members or seem to be a good thing—they come into being simply because they have to. It has proved a distinct advantage for beekeepers to join together in a central marketing scheme; and when this scheme reaches a high state of perfection (which is by no means the case today), it will be possible for the beekeeper to realize even greater profits than did the speculative buyers, and that too, without increasing the price to the consumer. In time, if California or Idaho or Texas or any other State or any combination of States find that they must co-operate, such a federation will be a necessity. These problems are worked out by themselves and can not and should not be anticipated.

Modesto, Calif. M. C. Richter.

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In Southern California.—'Tis January — and the New Year finds Southern California far short of rain sufficient to give us any assurance of a crop for 1920. To be sure, we have had some rain, which started the grass nicely but did not wet the ground to any great depth. High, drying winds have carried away much of the moisture. During such years as the one just past, one is most forcibly impressed with the fact that the greater part of southern California is dependent almost entirely upon the rainfall for its honey crop. Notwithstanding the fact that the alfalfa, oranges, and many of the beanfields—what are known as the irrigated crops—produce many carloads of honey, yet I feel safe in saying that, with an abundance of rainfall, the honey crop of these sections would be fully two or three times as great as in a dry year. In talking with beekeepers who depend entirely upon the sages, buckwheat, blue curl, sumac, and the so-called wild plants of our waste lands, I am surprised to find so many who made little or no honey during the season of 1919. It has been several years since we have had a heavy rainfall, and many people feel

FROM NORTH, EAST, WEST AND SOUTH

that this is the winter to get it—so here is hoping.

One crop this year is surely immense and that is the "tourist crop." Never in our history have so many visitors come to our State for the winter. In many of the larger cities it is often hard to find a place where one can secure a bed for the night. Some of these tourists are beekeepers and are not fully decided but seem to be somewhat in this frame of mind, "I came from ——— and can go back there; but, if I can get an apiary or a good place to work, I would like to remain in California a year or two, anyway." Many of these fellows report crops at home, which, I must say, will compare favorably with any of the records we can show. Better make haste slowly when thinking of changing to an entirely new climate, new conditions, etc. We don't make a crop every year, and 1920 may be one of the best or—well, the other kind.

What a pleasure to be able to call meetings and go to places without the fear of the flu, which was so prevalent over the country last year. According to reports, there have been but few cases in evidence this year.

Queens? Yes, they are the backbone of our apiaries. Where can we get them? To be sure, we have some good queen-breeders but not enough of them. At any rate, they do not have enough queens when people want them the most. Is there not sufficient money in the business to warrant men and women going into it? Some inducement should be offered to get enough people into the business so that the beekeepers can get all the queens they want during the spring and early summer. I think that there are usually plenty available during the late summer and early fall.

Each year finds another section of California trying out the growing of cotton to the extent of thousands of acres in a locality. It is only reasonable to suppose that in some of these places the cotton will yield honey. They say that it is pretty well conceded that little or no honey is stored from the cotton of the Imperial and Palo Verde Valleys.

Reports of the attendance at the short course in beekeeping held in San Diego, I am sorry to say, do not indicate that the interest shown by the beekeepers was as great as this excellent work is entitled to.

Five or six carloads of bees have arrived from the north since my last writing. A few of these colonies are light, but the majority are in fine shape and should give good results during the orange flow. The eucalyptus is reported as yielding nectar, and the strong colonies are getting considerably more than a living.

February is not too early to be sure that all colonies have several weeks' stores on hand. By the middle of the month all of the queens should be laying, and many colonies will have from two to five frames with brood the size of a saucer. On warm days you should see many bees entering the hives with pollen. If any is available the stronger colonies will get a little honey. This, except in very favorable locations, will not be of much benefit and must be supported by a sufficient reserve within the hive. About 60 days seems to be the accepted time to count on a normal colony getting ready for the honey flow. Uncapped honey in the combs is often mistaken for nectar just brought in from the fields. There are some things that we cannot prove, but it is supposed that this condition is caused by the bees either uncapping or moving the honey already in the hives. Be sure that all colonies have sufficient stores to last, should unfavorable weather keep the colony confined for some days or weeks.

Corona, Calif. L. L. Andrews.

* * *

In Minnesota.— The annual meeting of the Minnesota Beekeepers' Association was held at the University Farm on December 31 and January 1. The sessions were interesting, instructive, and well attended. O. J. Goodmanson of Little Falls explained how he packs his bees for outdoor wintering. Prof. G. C. Matthews gave methods for practical home queen-rearing. He also spoke on the subject, "Extensive vs. Intensive Beekeeping." This latter paper has been published by the State Inspector of Apiaries in connection with his last annual report to the Governor. C. B. Stravs, Superintendent of the Bee Culture Department of the State Fair, spoke very encouragingly of the work of the department during the past year. He reported that the number of exhibitors increased 40 per cent over that of the previous year. Premiums paid out amounted to $834 out of the $1,100 appropriated. All exhibitors, who desired to do so, were able to sell their exhibition honey in the building at 50 cents per pound, thereby saving the trouble and expense of shipping it back. Some of the exhibitors preferred to keep their honey for their own customers. About 70 per cent of the exhibition honey was sold, bringing $1,700. Plans are being considered for the enlargement of the honey building, providing for the putting in of a fully equipped extracting outfit for exhibition purposes, and a more suitable place in which to give the daily lectures on beekeeping during the period of the fair. Prof. Francis Jager spoke on the subject of "Larger Hives," also on "Problems of Wintering Bees." Dr. L. D. Leonard, speaking on "New Beekeeping Pointers I Learned This Year," emphasized the importance of planning far enough ahead to have 10 pounds of sugar for each colony, and then feed it not later than the first of October. F. E. Balmer, State Leader of the county agents, read a paper on "What Minnesota Beekeepers May Expect from County Agents." This paper contained so many facts of interest to the beekeepers of the State that we shall refer to it in a future number, and likewise to the paper by Prof. L. V. France on "Minnesota Beekeeping Illustrated." Many others contributed towards making the meeting one of the most successful held in many years. The election of officers resulted in the re-election of Prof. A. W. Rankin for president and Otto L. Wille, 110 Bates Avenue, St. Paul, as secretary-treasurer. Prof. France, the retiring secretary, felt that he could no longer devote the necessary time to the office. A hearty vote of thanks was given Mr. France for his faithful and untiring services as secretary during the last four years.

We are looking for a heavy loss of bees this winter. Judging by the letters which have been received from various parts of the State, and by the discussions at the annual meeting, many colonies went into winter quarters with insufficient stores to carry them thru the winter. Many others will come thru the winter light in stores. These should be fed as soon as taken from the cellar. Anticipating a good flow, many sold themselves short of white honey. But the fall flow did not materialize and sugar could not be purchased. Now, let us not forget the lesson which experience has taught us.

Dr. E. F. Phillips and staff are announced to hold a Beekeepers' Short Course at the University Farm, St. Paul, during the week of February 16-21. We are sure that every one who attended the course which Dr. Phillips conducted there last April will make a special effort to attend this course.

Minneapolis, Minn. Chas. D. Blaker.

* * *

In Texas.—The Beekeepers' Short Course held at San Antonio, Dec. 15-20, was a success in every way. In spite of the rain and the cold there was a regular enrollment of one hundred and thirty. Besides Texas, 12 other States and one country (Mexico) were represented by beekeepers. In addition to the regular beekeepers a class from the high school attended each afternoon session. A number of soldiers from the school at Fort Sam Houston took this work as a part of their regular school course.

A representative survey of the State, relative to the conditions of bees and honey plants, was made Dec. 15. The findings are peculiar in that they are contrary to the common opinion. The bulk of the bees of the State are in better than average conditions . It is hard to account for the spotted conditions found, for some good beemen were compelled to feed; but the reason for the widespread cry that the bees are starving is that the newspaper accounts of loss of bees in other States caused the bee-owners who never care for their colonies to investigate, and, as a rule, these neglected bees were starving. The report on honey plants is all one could ask for. In every instance the report is that all species are in first-class condition and present in more than normal quantities. The biennials, like horsemint, aster, boneset, and broomweed, are reported to be in the best condition since the winter of 1913. Fall-sown sweet clover has done remarkably well.

One of the things brought out during the Beekeepers' Short Course at San Antonio was the fact that Texas, a great honey-producing State, not only consumes its own honey but imports large amounts from other States. This does not mean that Texas exports no honey, but it does mean that Texas people have learned to eat honey, and when the home-grown article is no longer available, they import it rather than use cane or other syrups. If the west coast and white-clover regions would follow Texas in the matter of home consumption of honey, the low price of honey would no longer be the topic of beekeepers' meetings.

Reports indicate that the whole State is suffering from a plague of mice and rats. A similar outbreak was reported in 1918 in several counties in east Texas, but now it seems to have spread over the entire State. As soon as winter caused the rodents to seek protection and food they made themselves at home in houses, barns, and even beehives. In many places the blocks, used to narrow the entrances to the hives, have been pulled away or gnawed out by the pests. As usual the box-gum owner is the greatest loser. Many of our beekeepers have solved the protection problem by putting a piece of queen-excluder as a guard over the entrance.

If we are to get the best out of our honey flows in southwest Texas, it is evident that brood-rearing must begin in early December, if the bees are to be ready to care for the agarita flow. It was brought out in the Short Course that tulip-poplar became known as a honey plant only after the bees were so wintered that they stored the flow instead of building up on it. The agarita flow begins about Feb. 15 and lasts a month. Rock brush, Mexican persimmon, and huajilla give a continuous flow from March 12 until May 15. It is more than likely that the reason for the big flows from huajilla, catsclaw, and Mexican persimmon is that the heavy flow from agarita enabled the bees to build up by the beginning of the second flow. If the proper stores and winter protection were given, it is probable that the bees would be able to build up to their maximum and store part of the agarita flow.

College Station, Tex. H. B. Parks.

FROM NORTH, EAST, WEST AND SOUTH

In Ontario. — The past month in Ontario has been quite cold, with little snow here in York County. Within the last few days we have had some snow; but automobiles are yet to be noticed once in a while, plowing thru the roads and spoiling the sleighing. But, I guess, gasoline as a motive power for traveling is about done for this winter—anyway, after Jan. 10 auto traveling seems a bit out of season here. From the beekeepers' viewpoint, we shall be glad to see a continuous mantle of snow on mother earth for the next 10 weeks, as lots of snow generally means good wintering of the clover. As repeatedly mentioned in these columns, cold weather is often not nearly so great a factor in the wintering of bees outside as some other conditions local to certain sections. While we have had little snow here in York County, and hives are exposed to the winds at all times, at the yards in Simcoe County there has been much snow for six weeks past. A letter from a good friend near our bees up there says that packing cases have been covered for some time, and all one can see is mounds of snow in the rows of the apiary. Now, while the weather has been quite a lot colder there than here, yet one can easily guess where the bees have been the more comfortable and where they are apt to winter the better. At these yards in Simcoe County the snow has in different seasons covered the bees for over three months, and, aside from one or two getting entrances blocked each year with dead bees, they have always wintered splendidly. Our entrances are one-half inch deep by five in width, and if always assured of a good snowfall I should make them larger instead of smaller. However, I am not satisfied with the long, narrow entrance on account of the danger of clogging with dead bees during a long-continued confinement, and we think of making deeper bridges between the inner hive and the packing case, having a narrow upright outside entrance instead of the present style. That would allow bees to get quite deep on the bottom-boards and yet the entrance would not be clogged. This system is used largely by many of our best beekeepers, and its advantages are quite evident. It may be argued that more packing would overcome the difficulty, but our experience emphatically says, ''no.'' In years when we have had little snow up north (and that has happened twice since we had bees there), we had no entrances clogged. The trouble happened when hives were completely covered with snow and had enough of Nature's ''packing'' to make all the protection for which the most enthusiastic advocate of lots of packing would wish. More than than, the entrances had not been clogged with snow, as a large opening is always thawed around the entrances of the hives. Very small entrances in outdoor-wintered colonies may be all right where constant attention can be given, but I would not care to risk them in an apiary that we do not see from October till next April—and that is the condition we are up against in different yards.

Last week I was in Toronto, and, as usual, I made inquiries from honey dealers as to how our product is moving. I was disappointed to find the universal complaint that honey is having a very slow sale. In the face of facts indisputable that nearly all other lines of food products are moving higher all the time, and the demand for them is very firm, it is time for us to inquire just why honey is having such a slow sale. Lack of export is given as one of the main reasons, but our crop last year being quite light should easily be handled by home consumption. What would have happened if our crop had been on a par with that of 1916? Perhaps it would have moved more freely with a restricted crop; but if such a thing had happened, and the home demand had been as slow as now reported, certainly there would have been a break in prices.

One of the interesting talks given at the last convention of the Ontario Association was that of Wm. Agar about beekeeping in New Ontario. In the spring of 1919 Mr. Agar accepted the position of apiary inspector for one of our southern districts, and, having only nine colonies of bees in New Ontario at a point about 350 miles straight north of Toronto, he decided to let them go on the let-alone plan for the season. He left quite early in the spring, and without any attempt to equalize in any way he simply piled supers of drawn combs on each colony. Seventy supers, 10-frame Langstroth size were piled on the nine colonies. I forgot to mention that Mr. Agar had previously sold the rest of his bees, but had all these combs left on hand. The first two supers were placed crosswise on the brood-nest side by side, a strip being nailed on each super at the side so as to close up the space that would have been left. Then two more were put on top and so on—an average of eight supers to each colony, all given at once (May 20) and no excluders used. He did not get back to New Ontario till Sept. 15. Two colonies had done nothing—perhaps they had superseded queens and simply built up—at any rate, they had no honey in supers and just enough for winter. In the other seven hives conditions were good enough to please anybody. After leaving each colony a super of capped honey for winter use, in addition to some in brood-nests, from the seven colonies he extracted 1,725 pounds of fine honey. Allowing for the seven supers left with the bees, the surplus stored would average nearly 300 pounds per colony, and they were never looked at from May 20 to Sept. 15. All things taken into consideration, is not this a record?

Markham, Ont. J. L. Byer.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Dr. Miller Comes Back. In Gleanings for January, page 18, C. E. Fowler gives some figures supposed to show how it works out when a plan of rearing queens that I advocate is used. Then he says, "Now let us breed my way," and he gives some more figures intended to show that by his way 33 per cent more honey may be obtained.

Probably most of the older readers know the plan I advocated. It may be given in four words: **Breed from the best.** That's all. There's nothing original about it, and I have no copyright on it. Simply breed from the best, always from the best.

But in giving figures for carrying out my way, Mr. Fowler rears a queen each from colonies yielding respectively 100, 50, 0, 150, 200 pounds of honey. And then Mr. Fowler says, "I hope the Doctor sees the truth of the above figures and will confess again."

I must confess, friend Fowler, that I do not see all things as you seem to see them. You figure that the amount stored by any given colony depends altogether upon the character of the drone with which the queen of the colony has mated and not at all upon the character of the queen herself. In accordance with that view you say that in your way of breeding you "prevent all drones flying except from hive No. 105," and so you will "have all queens whose colonies give 200 pounds."

I am willing to grant that the drone is equally potent with the queen, indeed to grant the prepotency of the drone, but when you claim **all** the potency for the drone I must demur. For in that case the worker progeny of a drone will be equally good whether he mates with the best or the poorest queen in the yard.

The thing, however, that puzzles me most is how you can understand that in carrying out my way one can breed from queens of different grades of goodness and still call it breeding from the best. Indeed, I cannot help wondering whether you really mean that, and I should appreciate it if you would say whether when one breeds from a 200-pound queen and at the same time from a zero queen you would call that **breeding from the best.** C. C. Miller.

[Doctor, we are indeed glad to see the old spirit aflame in you, even if you can't write a whole load of "Straws."—Editor.]

* * *

Where Bees Build Drone Comb. Since reading the article in Gleanings last spring, page 210, on "Elimination of Drone Comb," I have transferred 25 hives from box hives to hives with Hoffman frames, and I made note of the amount of drone comb in each hive and its location. While in three of the hives the combs were as straight and as even as any I have in my 65 hives, and it was a pleasure to cut them out and tie them in the frames, the outside combs on the east side of the hives facing north were filled two-thirds full of drone comb near the center of the hive; and at the rear there were patches of drone comb the size of my hand. In some of the hives one-fourth of the combs were drone comb.

By noting the conditions of the combs I could reasonably judge the age of each comb, as none of them, the owner told me, was more than four years old. My observation was, if the bees built all the comb in one season there was a greater amount of drone comb than if they built it on the installment plan.

Mr. Miller's side-entrance theory may work all right in modern hives, but the bees do not know it. In only two hives was there a whole drone comb in the middle. I judged there was an old queen in that colony, and the outside comb for them the first year was in the middle of the hive body or gum. The next year they then finished it out as drone comb, and placed worker comb beyond it to the eastward. I did not find a single piece of drone comb on the west side of a single hive. J. E. Sutton.

Jackson, Ala.

* * *

Frames Wired to Prevent Sagging. As I now have success in getting perfect combs built on wired foundation, it might be well to tell in Gleanings how I do it. Maybe some other beekeeper can improve on it. I have, at last, by experimenting, succeeded in preventing any stretching or sagging, even if light brood foundation is used.

I wire the frames horizontally with three wires and the foundation with four wires vertically, all put in with electricity. I have perfected a machine to put the vertical wires in the foundation before it is put in the frames, and it is right speedy and does good work. All the wires are imbedded at once just by turning on the current.

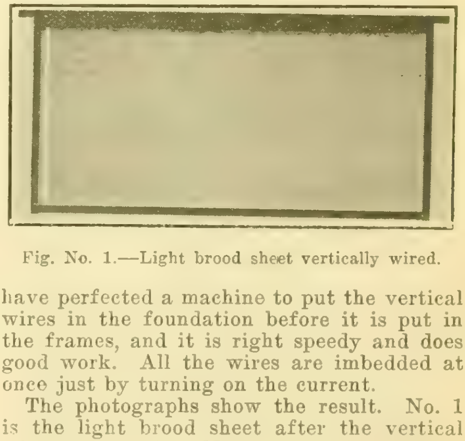


Fig. No. 1.—Light brood sheet vertically wired.

The photographs show the result. No. 1 is the light brood sheet after the vertical wires are put in. No. 2 is the frame after

HEADS OF GRAIN FROM DIFFERENT FIELDS

the foundation is put in and the horizontal wires are imbedded. No. 3 is the empty comb after the bees have drawn it out. Doesn't it look perfect?

Fig. No. 2.—After the horizontal wires have been imbedded.

The foundation is fastened in the frames with melted wax. That is what makes the spots shown beside the top-bar.

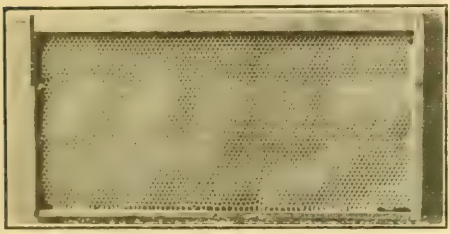


Fig. No. 3.—After the bees have drawn out the comb.

Brush, Colo. Daniel Danielsen.

* * *

How to Get Rid of Drone Comb. In the elimination of drones, I have observed three principal causes of the bees building drone comb at the sides of the frames:

(1) Whenever the foundation is not imbedded properly, but becomes separate from the wire, the bees promptly cut it away, as they will not allow a space between the wire and the foundation.

(2) Also drone comb results whenever the foundation is imbedded too deep, so that it is weakened.

(3) Further, if foundation is given the bees when no honey is coming in, they cut below and above the wire, and thus gradually make holes.

I overcame the excess of drone comb by daubing a little hot wax over about two inches of the two lower wires at the corners. This covers the wires and braces the foundation. I have used thousands of such frames of foundation. My frames are wired with five wires, and the lower wires daubed with wax. Four wires are placed as in the ordinary way, and the fifth wire is halfway between the upper two. This braces the weakest part of the comb.

Medina, O. J. E. Thompson.

Louisiana a Good Field. We have one of the best States in the Union for honey production on a large scale, but up to the present time there are very few large producers in the State.

The lower portion of the State is our best part. Here are hundreds of honey-producing plants, including willow, tupelo gum, black gum, red gum, white clover, persimmon, scrub palmetto, maple, pepper vine, goldenrod, heartsease, and late blooming thoroughwort. Any of these plants are in abundance. This flow of honey begins about the first of February, and continues thru the season, until killed by frost. I have just returned from this district; and on the 10th of December found asters, goldenrod, mistflower, and elderberry, all blooming. This district is anywhere from Morgan City to Des Allemands, La., on the Southern Pacific Ry., out from New Orleans, and this particular territory extends north and south from here for 50 miles or more. One beekeeper in here this season made 571 gallons of honey from 42 colonies, and another made 28 half-barrels from 58 colonies.

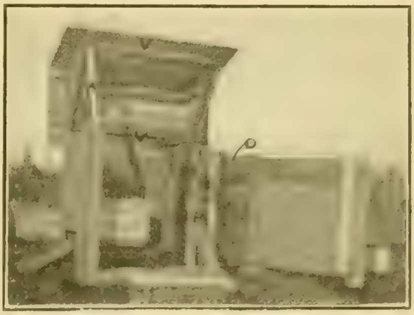
The only drawback is the Argentine ant, which gives the beekeeper much trouble. But there are ways of overcoming and controlling this pest. E. C. Davis.

Baton Rouge, La.

* * *

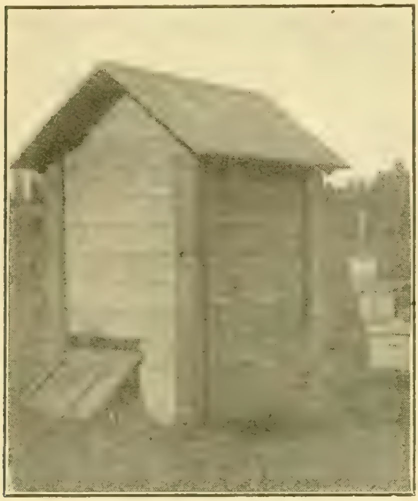
A Scale House for Protecting Scales. A scale house should have the following requirements: (1) Sufficient floor space for the scale; (2) sound construction; (3) enough super room above; (4) a suitable bee-entrance; (5) good ventilation; (6) a small opening for weighing only; (7) easy access to the hive for manipulations; (8) easy opening and closing of the house, with little disturbance to the bees; and (9) easy means of placing and removing scale.

The accompanying views show a scale house which conforms to these requirements. The frame work is of 2 x 4's, and the sides



Frame work of scale house.

are of drop siding. The material cost about $8. I did the work. The top is hinged on the under side of the rafter projections so that it will tilt back only as far as shown in the picture. It is held tight in this position by brace A, notched on the ends to fit. One side and the back are hinged to one corner post, which is braced by B, a removable brace mitered on the ends, which are fitted under mitered blocks. When the house is closed, the drop siding and corner boards fit together exactly. Weighing is done thru opening D, closed by a small door. Ventilation is thru the bee-entrance and the spaces marked V between the plates and the roofing boards. One fault that might be found is that the floor space is a little too large for the scales.



Outside appearance of scale house.

A scale is the best measurer of the honey flow as it is gathered, and it is often quite advantageous to know just when the surplus from a flow ends. After having had a scale, I would not want to be without one. But I also would not think it economical to expose a good scale to all kinds of weather—hence my scale house. Ivan Whiting.

Plymouth, Wis.

* * *

Seriousness of Isle of Wight Disease. It is some years since you have heard from me. Now that the war is over and we don't live any more on an island shut off from other countries, I will give you a sign of life.

It is known to you that in England the beekeepers are still fighting against the well-known malady, Isle of Wight disease. It seems to be an awful malady, and during my visit in England I saw more empty hives than populated ones. Many beekeepers lost all their stocks. It is very interesting to read what Joseph Tinsley of the West of Scotland Agricultural College at Kilmarnock writes in his preliminary report on the Isle of Wight disease. So long as we don't know exactly what bacillus is the cause of this awful malady, it is hopeless to fight it.

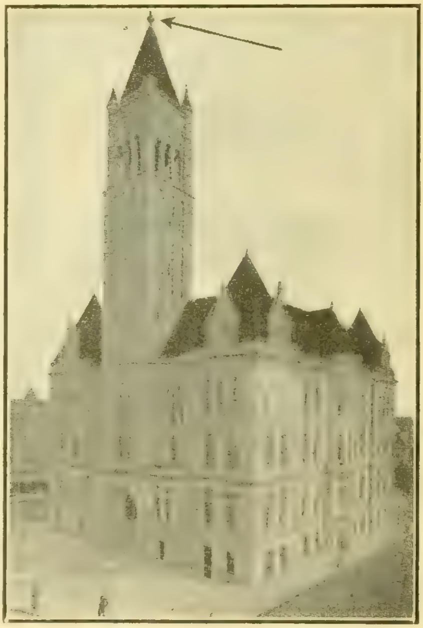
Dutch bees don't take this illness. Mr. Tinsley told me that he had fed Dutch bees with honey in which were dead bees which had died from Isle of Wight disease. However, the Dutch bees did not catch the disease. This I think is a proof that our bees are well able to withstand it.

W. Herrod Hempsall, editor of the British Bee Journal, said that we had the same illness here in Holland 80 years ago, and that now the bees have become immune. Whether this is true I cannot say, as I have never heard this story here. At the same time I heard that they will now allow Dutch drones to cross with Italian queens. The result of this the future must tell. Tho the real Dutch bees are able to withstand the illness, it is still doubtful if the cross with Italian queens will as readily withstand it.

Breukelen, Holland. Hans Mathes.

* * *

Some Bees Are Very High. The Wood County court house of Parkersburg, W. Va., stands right in the business section. On the top of the tower is an open ball (or lattice-work sphere). A colony of bees have taken



Arrow shows where bees are.

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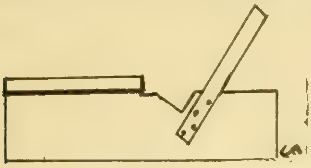
possession of this, a hundred feet or more above the street. From the number of bees flying around it, it must be a strong colony. The janitor says he is going up to get a pot of honey. He is certainly welcome.

Parkersburg, W. Va. Dr. J. F. Hill.

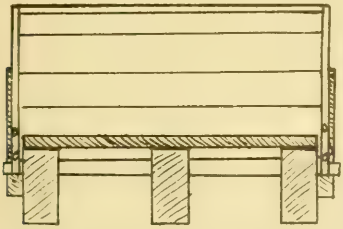
* * *

Form for Fastening Foundation. The drawing shows a simple form I am using in fastening foundation into frames with the triangular strip. It is quite a satisfactory idea when put into practice and is much quicker than when the frames are held by hand or leaned against something.



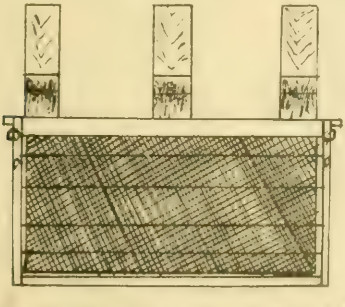
Side view showing foundation board, groove, and stick for holding up frame.

It can be made in just a few minutes by using three 2 x 4's about 15 inches in length, and sawing out an angular piece as shown in the side view. An inch is deep enough, with a convenient slant for ease in nailing. Tack a strip on the outside of two pieces 3/16 of an inch back from the cut, giving them the same angle as the cut. Then nail the three pieces together, with a board that fits loosely into the frame and about ½ inch thick, and the form is made.



End view, with frame for tacking in strip.

In using it, a frame is placed in the groove, the foundation put in position, and the strip toe-nailed in place. The frame is then dropped forward on the board and the wire imbedded. About one handling of the frame is all that is necessary.



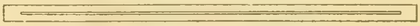
Top view with frame in position for imbedding of wire.

Raleigh, N. C. J. E. Eckert.

* * *

Bottom Starters in Brood and Extracting Frames. Having in view the desirability of getting combs of worker-cells in brood and extracting frames built down and securely attached to the bottom-bars, and the difficulty the average beekeeper has in attaining this result, perhaps the method described below may be of value.

The plan has, I think, the merit of being simple as well as secure. I have the bottom-bar of the ordinary standard frame made with a saw-kerf which practically divides it into halves lengthwise to within ½ or ¾ of an inch from each end as shown.



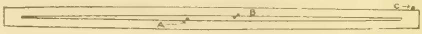
Bottom-bar with saw-kerf.

The assembling of the frame is performed in the usual way, and also the wiring.

The bottom starter is of medium brood foundation, and cut in strips ⅞ inch wide by ½ inch less in length than the inside measurement across the frame horizontally.

To put the starter in position, take two two-inch wire nails (a) and (b) and cut off the heads. Then drive them into a board or into the top of the workbench, spacing them about two inches apart, and allowing them to stick out about ⅛ of an inch.

The bottom-bar of the frame is then placed over the projecting nails (a) and (b) which enter the saw-kerf midway between the ends. An end of the frame is then pressed slightly to one side, and so held by a movable pin (c) inserted in a prepared hole bored in the bench top. The saw-kerf will now, as shown, be sufficiently widened out to receive the prepared starter, which can be dropped into place. The holding-pin (c) is now removed, and the saw-kerf closes up, holding the foundation firmly; and if any extra firmness is desired, a fine nail can be driven thru the bar at the center, from edge to edge. The starter is held upright; and as it will be ⅝ of an inch high there will be but little chance of its folding over sidewise, as, I fear, often happens with the melted-wax method of fixing.



Showing saw-kerf widened to receive starter.

To prevent the bulging of the finished comb, a space of about ⅜ of an inch should be left between the lower edge of the main sheet of foundation and the upper edge of the lower one, or starter.

These starters have proved very satisfac-

HEADS OF GRAIN FROM DIFFERENT FIELDS

tory to me. It might seem that such a bottom-bar would be weakened by the saw-kerf, but I have no trouble from the partially divided bars breaking or splitting when pried apart to receive the foundation. The frame is assembled in the usual way, the corners nailed, and the frames wired before the bottom starter is put in; and the fact of the bottom-bar being dovetailed into the bottom end of the end-bar prevents any chance of its dividing in two when opened out to receive the starter.

The adoption of this suggested saw-kerf in the bottom-bar can not entail much extra cost in manufacture, and would give beekeepers the option of easily inserting and using bottom starters, if so desired.

Strachur, Scotland. Arch'd Fergusson.

* * *

Another Pet Method of Introduction. By this method I have lost only about 4 per cent of the queens introduced — many of them introduced into strong, cross colonies and some during a dearth of nectar.

Upon receipt of queen the undesirable queen is removed, and the new queen clipped and transferred to a Miller cage without attendants (these being destroyed). The cage is then laid on top of the frames so that the space between the frames runs centrally lengthwise of the cage. If no super is on the hive, a Hodgson wire escape board is placed over the cage. (An inverted inner cover is as good, but the wire gives better opportunity to smoke gently if desirable.) Then the covers are placed on. If comb-honey supers are on, an inverted wire excluder is used instead of the Hodgson. If extracting supers are on, two excluders are used, the lower one inverted. This arrangement gives the bees free access to the supers, and also leaves room for the bees to crawl all over the cage. Twenty hours after introducing, the pasteboard is removed and the hive closed for five days. This method has been highly successful with me. I doubt if there is a better or safer way.

Brookhaven, L. I. E. M. Barteau.

The Fashions.—By Bill Mellvir

(With apologies to Walt Mason.)

I've followed the fashions and swallowed my rations in beehives thru ages galore. I've always been changing, but prices are ranging so high I can't change any more.

My first hives were boxes as canny as foxes, refusing their real works to show. When I was real busy I used to get dizzy from stooping to peep in below. When Langstroth's invention came to my attention, I changed to that style like a breeze. With porticos nifty they looked bloomin' thrifty out under the old apple trees. Simplicity followed with arguments solid for bottoms and covers alike; their joints were all beveled where propolis reveled; I pried them apart with a spike. Eight-framers then riot demanded a try-out; so beehives were purchased anew. They lasted a season when for some strange reason the style-makers panicky grew. The fads of reversing, contracting, and nursing were making us tight-wadders groan. The styles were so many that every cheap-penny invented a hive of his own. The Heddon two-section brood-chamber collection with thumbscrews, I chose as the best. For speedy contraction these gave satisfaction, but soon they were junked with the rest. And then came the Danzy, that psuedo bonanza; I fell for it dead on the go. I transferred that summer and sweat like a plumber; it cost me a bushel of dough. Then came the contentions that Langstroth's dimensions of early days surely were right. I changed them all over from home yard to Dover, to Langstroth ten-framers at sight. So then things were quiet some years without riot, approaching a standard at last. I rested from fretting, from ranting and sweating o'er fashion's demands in the past. But lately some batty galoots that are ratty are howling again for a change. I hereby give warning that changing each morning is now getting out of my range.

Dame Fashion of Beedom! pray give us some freedom! We've slaved for you now till we're poor. Our hives that are standard should never be slandered by fashion's decrees any more.

Bill Mellvir.

GLEANED BY ASKING

Iona Fowls

QUESTIONS.—(1) Are the tested and untested queens sold by queen-breeders mated or are only the breeding queens mated? (2) Last fall I purchased 8 colonies of Italian bees in homemade movable-frame hives. Upon removing the covers of the hives when packing I found two colonies gone, but no dead bees. One hive showed much evidence of the larger wax-moth. The other had no work of the moth visible and the two outside frames contained nearly full combs of sealed honey. On the inner frames the comb was very dark, the cells full of a dark-brown odorless liquid. What was the cause of the loss of the two colonies? (3) June 1st I intend to get pound packages of bees with a queen for each, placing them in new standard hives on full sheets of wired foundation. Then I intend to place Porter bee-escapes on each of the old hives, and close to the entrance of each of the old hives to place one of the new hives with its queen and pound of bees. In August I expect to sulphur the bees in the old hives, remove any remaining honey, dilute it with water, boil it to kill all germs, feed it back to the bees thru Boardman entrance feeders, press out the wax, and burn the old hives and refuse from the wax. Is the above plan all right. F. B. Sawyer.

New York.

Answers.—(1) Tested and untested queens when sent out are mated. The unmated queens are always sold as virgins. (2) From your brief description we cannot tell what caused the trouble with your bees. Shortage of stores or a poor queen sometimes causes colonies to dwindle and die. If you would send us, or, better still, the Department of Entomology, Washington, a small piece of comb showing the dark-brown substance within the cells, you would be able to find out whether or not the colonies were affected with foul brood. (3) If it proves that your colonies have foul brood, then the method you suggest would work out nicely, only instead of placing the new hives close to the old ones, it would be better to put the new ones on the old stands and place the old ones (with bee-escape attached) near the entrances of the new ones. And the old hives should not be touched or jarred after being so arranged. In using this plan it will, of course, be necessary to have the old hive shut up completely so that not one of the bees can escape except thru the bee-escape at the entrance. You see, after the foundation is drawn in the new hive, if any bee in the old hive should load up with diseased honey and then enter the new hive and store it, the disease would spread to the new hive. By using care, however, the plan will be found a success. In regard to foul-brood honey, tho, we would not care to take such chances. Altho it is possible to dilute with water, boil until all germs are killed, and then feed back to the bees, we ourselves would not care to take the risk. It would be much better economy, in the long run, to use the honey for baking purposes; for, as you doubtless know, such honey is perfectly wholesome for human consumption, altho disastrous for the bees. The extractor used in extracting foulbrood honey should be carefully disinfected, and the old hives scorched out and saved. The wax also should be saved, as you suggest.

Questions.—(1) In the June issue of Gleanings, page 367, in commenting on a swarm-control plan there mentioned, Miss Fowls asserts that she or her people managed to get the nurse bees—or "took pains" in behalf thereof—to beget themselves into the upper stories, and stop committing the nuisance of starting queen-cells in the lowest story. Now what I would like to be enlightened about is, how one can do anything to induce any certain portion of the bees to go just where you, we, I, or anybody else wants them to go? I for my part cannot even tell a nurse bee from any other worker. I would like to quality myself or be qualified to get aforesaid nurse bees to beget themselves upstairs instead of frustrating my designs. (2) When trying this swarm-control plan last year, next to no work was done in the lowest story. How is it that with me it results as described? (3) In that escape foulbrood treatment given in the A B C and X Y Z of Bee Culture, would not a glass tube be better than a tin tube? It would not be such a dark passageway. Chas. Reynders.

Pennsylvania.

Answers.—(1) It is not difficult to get the nurse bees out of the lower brood-chamber and into the upper one. It is only necessary to shake out the bees adhering to the lower brood-chamber on to the combs of bees and brood placed above. The young bees that act as nurse bees will have no inducement to leave the upper story and go thru several other stories down to the lower one, and will, therefore, remain above on the brood just where the beekeeper wants them. (2) In the case of good, strong colonies, during the honey flow, we have never experienced any difficulty in getting the foundation drawn out in the lower brood-chamber. If applied too late, however, the plan would be unsatisfactory. (3) The glass tube, we fear, might cause the bees to worry. Since they could see thru all along the tube, they would not easily find the exit.

Question.—I noted in a certain issue of Gleanings that you tried out, last season, in your yards the non-swarming plan incident to the use of a half-depth super under the hive. I beg to ask how this worked out? I tried the plan on a small scale with some success and contemplate employing the idea in my outyard, but would like a little more confirmation from the experience of a large producer; hence my query. H. M. Daniels.

Maine.

Answer.—In our locality there was very little swarming this past summer, and so, altho we think the plan a good one, we are not yet ready to report. We shall try it again the coming season. If you also use the plan next summer we shall be glad to learn of the results.

ANSWERS BY E. R. ROOT.

Question.—I am desirous of obtaining information as to the practicability of locating either in southern California or on the eastern slope of the foothills of the Rocky Mountains in Colorado. Any information that you may be able to give me in regard to the advantages and disadvantages, length of seasons, etc., of these two localities will be gratefully accepted. Charles É. Stowe.
Colorado.

Answer.—The territory on the east slope of the foothills of the Rocky Mountains in Colorado and the territory in southern California are both excellent for beekeeping. If you have any difficulty with your heart on account of elevation, you will find California much preferable. Beekeeping in southern California is one of the prosperous industries, altho it has its ups and downs. It requires migratory beekeeping to get the best results. The bees must be moved from eucalyptus into the orange country; and, just as the orange is about closing, the bees should be moved into the sage, provided there are sufficient rains so that they will yield nectar. Otherwise the bees had better stay where they are. They may then be moved from the sage to the beanfields, and from the beanfields back to their former location for winter. One has to be in California for a year or two before he is able to get next to the general situation. In the Imperial Valley of California the conditions are quite different. The crop there is mainly alfalfa and cotton. In Colorado the main source is alfalfa; and if one can locate where alfalfa is cut late, or, better yet, where it goes to seed, the conditions will be all the more favorable. We would advise you, if you can, to buy out the bees and bee-range of some one who is willing to sell. While there is, of course, considerable unoccupied territory in California, practically all of the bee-ranges have been taken up in Colorado and in the Imperial Valley, Calif.

Question.—Do bees do well in a citrus orchard?
California. Mrs. Geo. A. West.

Answer.—The citrus trees are excellent honey-producers, and some of the best honey-producing localities in the United States are found among these groves in southern California.

ANSWERS BY MELL PRITCHARD.

Question.—A friend of mine tells me that he knew an old bee-hunter who used a pair of yellow glasses with a small (half-inch in diameter) clear hole in the middle of each lens, to help him see the bees and trail them to their hive. So far as you know, is there anything in this? and could such glasses be of any help? Henry W. Miller.
Arizona.

Answer.—The spectacles to which you refer are made for target practice, and would undoubtedly be of some assistance in following bees. Common field glasses are of great help in the woods in looking for the entrances to bee-trees.

Question.—I am keeping in the cellar 90 colonies of bees. I should like to know where I could buy a good hygrometer, and what the normal dampness in the cellar should be. A. V. Praehar.
Minnesota.

Answer.—The amount of moisture which the air contains is shown by a hygrometer. This consists of two thermometers, one of which has the bulb dry while the other bulb is kept wet by means of a wick which draws distilled water from a glass bulb. The difference in the reading of the two thermometers should be about three degrees when the temperature of the cellar is 48 degrees. This indicates the relative humidity to be 80 per cent. Hygrometers are for sale by nearly all jobbers of hardware.

Question.—On Nov. 26 I put 46 colonies in my 12 by 13-foot cellar, which is dark and well ventilated. The temperature of the cellar never goes below 42 degrees nor higher than 46. The covers of the hives are raised a little, and the entrances are wide open. The bees have plenty of honey for stores, yet at times many fly out and finally die, being scattered about all over the cellar. No bees in this section had a real full flight in November. What would you advise me to do?

Answer.—From the description given of your cellar, we should think it very well arranged and should give good results; yet we would suggest that you close the top of the hives and raise the temperature of the cellar to about 48 degrees. We find our bees more quiet at this point than either above or below it. We have 535 colonies in our cellar, which is 12 by 60 feet. They were put in six days later than yours, and up to this time we have swept up about 18 pounds of dead bees. This we consider good wintering. If there are signs of dysentery in the cellar, it would be advisable to set them out on a warm day and give them a cleansing flight.

ANSWER BY FRANK COVERDALE.

Question.—I am going to sow about 20 acres of sweet clover in this way: The ground since breaking has had two crops of wheat, the last one being disced in on stubble. Just before freezing in the fall, I disced well to kill volunteer wheat as much as possible, and, early in the spring, I intend to sow sweet clover and harrow lightly. I will get a thin stand of volunteer wheat and hope this plan will not leave the ground too loose. What do you think of my proposed way of seeding? C. S. McLeran.
Iowa.

Answer.—You might sow the sweet clover on the last snow of spring, letting the snow and rains cover it; and, as the sweet-clover hulls or shells are very hard, the soaking and freezing will be a great aid toward an early and even coming-up. If the wheat has been thinned to one-half of a usual stand, it probably won't hurt to let both grow together; and the wheat, if it lives, can be harvested and the clover cut for hay late in the fall or pastured, not too heavy. It is an uphill business to attempt to grow sweet clover on a land that is acid; but there is no clover easier to grow when the soil is either inoculated or sweet, or sweetened by ground limestone or air-slacked lime applied lightly.

TALKS TO BEGINNERS

By Iona Fowls

THE coming spring is an unusually good time for making a start with bees. The price of honey is good; there will for years be no danger of overproduction; and the beekeepers are organizing as never before, helping the industry by legislation and in other ways that were quite impossible when working individually.

The Lure of Beekeeping.

For those who love outdoors, and would like work or rather a pastime in which they can completely lose themselves with the ever-present chance of discovering some fact never before observed by any previous authority, there is nothing quite so fascinating as the keeping of three or four colonies of bees. Do you not remember years ago when the craze struck you for collecting postage stamps, or, possibly, it was birds' eggs or arrowheads? Or perhaps you were enthused with the idea of writing some wonderful book or making a flying machine. Whatever the particular enthusiasm may have been, we'll venture to say that it will seem quite insignificant in comparison to the bee fever when you really get the latter in dead earnest. Moreover, the bee fever, when once contracted, usually becomes chronic. Take the case of the well-known beekeeper, H. R. Boardman, who died at the age of eighty. A few months before his death he said that if he were only a young man of twenty he would just be delighted to engage in beekeeping.

Only last July, Dr. C. C. Miller, who perhaps is the best known and best beloved beekeeper in the world, when answering the question, "Does Beekeeping Pay?" said: "If you're a born beekeeper no other business will give you as much enjoyment added to your living. I know I might have made more money at some other business, but I'd have been dead long ago. I've just started in on my 89th year, and there's just as much fun in living now as there was when I began keeping bees 58 years ago. More; for I've better health than I had then." Just one look into Dr. Miller's face has always been sufficient to prove his enthusiasm for beekeeping has never waned.

Best Way to Begin.

To any who may be interested in beekeeping but have a little doubt as to whether they will be able to make it pay, we suggest that the best way to take up this work is to purchase three or four colonies and begin simply with the idea of providing one's self with a live, wide-awake interest outside of one's regular work. If the beginner is careful and punctual and begins with the right spirit, reading the best writers on the subject, and occasionally visiting a good beekeeper to talk things over, he will be pretty certain to make his few colonies pay. And then, after he has gained experience, if he decides that he likes beekeeping so well as to change this sideline into a mainline, he may gradually make the change; but, of course, before launching out too far, a year's work with a professional beekeeper would be a wonderful help.

Our Talks This Year.

Our talks to beginners this year, therefore, will be to the small beekeeper with three or four colonies, and we strongly advise that he start with no more than this. In each talk we shall attempt to explain in successive steps exactly what the beginner should do in order to succeed with his bees.

How and Where to Get the Bees.

Sometime this month the beginner should make his plans for obtaining the bees. Then two or three months later when the weather is warm enough for the bees to fly freely, perhaps during May in the Northern States, he may look over the colonies, make his purchase, and take the bees home. The bees may be obtained from a distance either in entire colonies or in pound packages. When sold in the latter way, the packages are accompanied by directions explaining how they are to be handled upon arrival.

Sometimes neglected colonies in old hives may be obtained from a nearby farm at a low price. It may be difficult, however, for the buyer to be certain of the condition of such colonies, for often the combs are solidly built together and cannot be removed for examination; also, considerable time and trouble are involved in getting such colonies transferred to modern hives. When buying such colonies it is a good plan to take along a good beekeeper to determine their value and whether or not they are diseased.

A better way of getting colonies is to leave new hives with some reliable beekeeper, with the understanding that he hive his first swarms in these hives. In this way you pay for bees only and not for old hives for which you have no use. The only objection to the plan is that you may not obtain the colonies early enough in the season to get a large amount of surplus.

The very best way of getting a start is to buy good colonies in modern hives from a neighboring beekeeper whom you can trust.

Use Our Information Bureau.

And now for the sake of those beginners to whom puzzling questions occur which are apparently not answered in the available bee literature, we shall again call attention to the fact that we have an information department intended primarily for them. It is our sincere hope that all beginners, as well as all other readers of Gleanings, will feel perfectly free to take advantage of this information department at any time.

JUST NEWS

Editors

THE annual convention of the National Beekeepers' Association, which has been previously announced to be held at Hotel Statler, Buffalo, N. Y., March 1 to 3, has been postponed to March 9, at same place, and will probably continue thru March 10 and 11. The meeting is likely to prove the most important ever held by the National Association, as its chief business will be an entire re-organization along the lines laid down at the meeting held at Kansas City, Jan. 6 and 7, a full report of which is found on this and the following page. Don't forget the place and date—Hotel Statler, Buffalo, March 9.

* * *

Gus Dittmer, superintendent of the bee and honey department of the Wisconsin State Fair for 1920, is already sending letters to the beekeepers of his State, urging them to make entries at once for the next State Fair. The premium list for beekeepers for 1920 offers awards to the amount of $1,075 as against $460 in 1919. Mr. Dittmer, in his enthusiastic appeal to Wisconsin beekeepers to help beekeeping, says: "We want the name of every beekeeper who will consider the probability of making entries for the 1920 State Fair **at once.** More than $3,000.00 worth of honey was sold at the 1919 State Fair, during the week, at from 25 to 40c per pound. The publicity given to honey, and the demand created for it, cannot be estimated. You have had your share of the benefit that resulted. Now do your share in keeping it up at the 1920 State Fair. Write at once."

* * *

The chairman of the extension committee of the Wisconsin State Beekeepers' Association reported that the membership of the Association was 530 (now increased to 543);that there were 30 local associations in the State, 17 of which were affiliated with the State Association. During the past year the university has held 49 meetings in behalf of the beekeepers, at which there was an attendance of 1,453 people.

* * *

One of the best State conventions held recently was the Indiana convention, which met at Indianapolis Dec. 18, 19. Those present spoke only when they were able to give something they honestly believed worth while. All worked in harmony and enthusiastically co-operated to make a success of the meeting.

* * *

Michigan beekeepers are on their way to co-operative marketing. At the recent annual meeting of the Michigan Beekeepers' Association it was decided to organize a co-operative marketing exchange. About 37 persons signified their desire to be members and pledged their financial support in varying amounts up to about $200 each. Any who were not present and desire to belong and share in the benefits of the organization should correspond with the secretary of the association, R. H. Kelty, East Lansing, Mich. A committee will soon begin the work of organizing the exchange.

* * *

The Utah Beekeepers' Association will hold its annual convention at Salt Lake City Feb. 20-26. It is expected that it will be the largest and most interesting beekeepers' meeting ever held in Utah.

* * *

The Panhandle Beekeepers' Association will hold its spring meeting at the Market Auditorium, Wheeling, W. Va., on Wednesday, March 10. The annual meeting of the Tri-State Beekeepers' Association is announced for the same date and place.

* * *

The county bee inspectors of California will meet at Exposition Park, Los Angeles, Feb. 7, to form a permanent State organization. W. Lynch of Stanislaus County was appointed corresponding secretary, to write to all the inspectors of California and adjoining States as to laws and inspection.

* * *

The New York State College of Agriculture at Ithaca, in co-operation with the National Bureau of Entomology, will give a short course in commercial beekeeping during the week of Feb. 23. This course will be similar to the one given last year, with some important new features added. The indications are that the attendance this year will be more than double that of last year. No tuition fee is charged. All beekeepers are welcome, and those wishing to attend are asked to write to George H. Rea, Extension Specialist in Apiculture, College of Agriculture, Ithaca, N. Y., at once and have their names registered for this course.

The American Honey Producers' League

In response to the call issued by the National Beekeepers' Association, there met in Kansas City, Mo., on January 6 and 7 delegates representing the beekeeping interests of all parts of the country. It was probably the most representative gathering of honey-producers that ever came together in America.

They came together not to discuss individual problems but to add their views together to form a composite image of the needs of the American beekeepers. This resulted in the launching of an organization broad enough in its scope to include any interested group or individual in North America, and with policies so chosen and defined that everyone in the beekeeping fraternity, North, South, East, and West, must immediately respond to its appeal and gladly offer their support. All sectionalism is lost in the comprehensive statement of its aims.

As fast as funds will permit, the League will develop bureaus or departments, which will take charge of the League's efforts along the several lines. The following outline explains the program to be followed:

Department of Marketing: grading, standardizing of packages, advertising, crop reports, market reports, distribution.

Department of Education: State and national extension work, disease control, beekeeping courses in colleges, dissemination of information.

Department of Legislation: appropriations, uniform inspection laws, pure food laws, quarantine.

Department of Legal Aid: apiary protection, illegal ordinances, classification of freight and express, transportation claims.

Department of research: laboratory research, experimental apiaries.

Department of Equipment: securing supplies, queens and bees, standardization.

Department of Arbitration.—complaints.

Membership in the League is to be secured by the election of one member by each affiliated organization. An organization can become affiliated by the payment of $1.00 per member per year with a minimum annual payment of $100. Each member so selected has one vote in the League. Sustaining memberships may be secured by individuals or firms by the payment of an annual fee of $10, but this membership does not carry with it the privilege of voting. Similarly, professors of apiculture, apiary inspectors, experiment station workers in apiculture, extension workers, entomologists, and others are given honorary memberships with the right of discussion but without a vote. In this plan all interests are given a voice in the discussion of policies, but the voting power is vested only in the elected representatives of the beekeepers themselves. The board of directors is made up of the president, vice-president, and three directors who serve for three years, the term of one expiring each year. The board selects a secretary-treasurer, who may or may not be a member of the League and who is the only salaried officer. The following officers were elected: President, E. G. LeStourgeon, San Antonio, Tex., Manager of the Texas Honey Producers' Exchange; vice-president, Prof. Geo. H. Rea, Extension Specialist in Beekeeping, Cornell University, Ithaca, N. Y.; directors, Frank Rauchfuss, Denver, Colo., Secretary of the Colorado Honey Producers' Association, Prof. F. B. Paddock, Ames, Iowa, State Apiarist of Iowa, and E. S. Miller, Valparaiso, Ind., President of the Chicago-Northwestern Beekeepers' Association. The Board of Directors selected Chas. B. Justice, Manager of the California Honey Producers' Exchange, as the secretary-treasurer.

It is difficult to describe the meeting as it was because it was so different from the beekeepers' meetings and conventions as we know them. Very little talking and arguing took place. It was a meeting of business men. It took but a short time to arrive at the decision that an entirely new organization of beekeepers was needed. The delegates were of one mind regarding the policies and the aims of the new organization. It was therefore a relatively short meeting. Ideas were soon crystalized into a constitution which was unanimously adopted. The League starts with the united support of the following who attended and determined its policies:

Prof. Geo. H. Rea, Ithaca, N. Y., representing seven beekeepers' organizations of New York and Rhode Island; Clifford Muth, Cincinnati, O., representing Muth & Co.; J. A. Warren, Medina, O., representing the A. I. Root Co.; J. D. Rettig, Wabash, Ind., representing the Indiana Beekeepers' Association; E. S. Miller, Valparaiso, Ind., representing the Chicago-Northwestern Beekeepers' Association; Colin P. Campbell, Grand Rapids, Mich., representing the Michigan Beekeepers' Association; B. F. Kindig, East Lansing, Mich., President of the National Beekeepers' Association; Dr. A. C. Baxter, Springfield, Ill., representing the Illinois Beekeepers' Association; L. C. Dadant, Hamilton, Ill., representing Dadant & Sons; H. L. McMurry, Madison, Wisc., representing the Wisconsin State Board of Agriculture; E. G. LeStourgeon, San Antonio, Tex., representing the Texas Honey Producers' Exchange; W. C. Collier, Goliad, Tex., representing the Texas Beekeepers' Association; Dr. J. H. Merrill, Manhattan, Kan., Joseph A. Reinecke, Seneca, Kan., and C. B. Baxter, Leavenworth, Kan.—all representing the Kansas Beekeepers' Association; Frank G. O'Dell, Topeka, Kan., representing "Capper's Weekly"; E. E. Tyler, Columbia, Mo., President, Missouri Beekeepers' Association, J. F. Diemer, Liberty, Mo., and W. L. Wiley, Brunswick, Mo.—all representing the Missouri Beekeepers' Association; Prof. F. B. Paddock, Ames, Iowa, representing the Iowa Beekeepers' Association; R. W. Livers, Hardy, Nebr., representing the Nebraska Beekeepers' Association; Frank Rauchfuss, Denver, Colo., representing the Colorado Honey Producers' Exchange; Mrs. Cora D. Polhemus, Lamar, Colo., and Wesley Foster, Boulder, Colo., representing the Colorado Beekeepers' Association; F. B. Terriberry, Salt Lake City, Utah, representing State Apiary Inspection; A. E. Schellhorn, Billings, Mont., representing the Montana Beekeepers' Association; J. B. Ramage, Yakima, Wash., representing the Washington Beekeepers' Association; Chas. B. Justice, Los Angeles, Cal., representing the California Honey Producers' Exchange.

B. F. Kindig.
(President Nat'l Beekeepers' Assoc.)
East Lansing, Mich.

BEES, MEN AND THINGS

(You may find it here)

I HAVE trebled the number of my hives, and for the season of 1920 I shall be able to sell many swarms and queens. The spring was favorable to the bees, but the summer was the driest we have seen since 1893. In July the thermometer went down to 34 degrees Fahrenheit—the coldest July since 1849. The buckwheat was not good in 1919. In 1917 and 1918 I had some colonies which gave me 220 pounds of buckwheat honey.—E. Giraud, Le Landreu, France.

Being a returned soldier from France, I would like to answer in a way the reference to beekeeping in France, page 29, January Gleanings. It is true that I saw many backward beekeepers. It was my first sight of straw skeps. I never saw an Italian bee in France. I saw a few movable-comb hives, usually in apiaries with box hives. I was told by Mr. Giraud, the queen-breeder, that many thousands of colonies were brimstoned every year in France. My experience there made me happier and broader. I liked France, and I liked it for the reason that so many Americans disliked the country. All that I saw made me proud of my own great nation.—Clinton VanPelt, Clark County, Ind.

I quote the following from Dr. Merrill: "Upon examining the above figures the value of the different forms of wintering is apparent. Whether protected by windbreak or not, the 2-story hives have about 5,000 more bees in the spring than the 1-story hives, and the packed hives would have about 25,000 more bees. Figuring 5,000 to the pound, valued at $2.50 a pound, the packed hives would have $12.50 worth of bees more than the unpacked hives. The difference in the value of a windbreak is more apparent, as would be expected with the hives which were not packed, altho there is about 2,000 bees difference in the packed hives in favor of the windbreak."—B. F. Kindig, Ingham County, Mich.

The report of the Chief of the Division of Publications, for the year ending June 30, 1919, shows that 62,218,829 copies of all publications were issued. This includes periodical publications and all others. The distribution of Farmers' Bulletins was 17,159,294 copies. The distribution of bulletins on bees represents about one per cent of the whole, while the appropriation for beekeeping is 1/10 of one per cent of the whole department appropriation. — E. F. Phillips, Washington, D. C.

Egypt is termed "a perennial Rip Van Winkle of history," in a bulletin from the National Geographical Society. * * * * In February, 1905, an American explorer, T. M. Davis, discovered the tomb of Yuaa and Thuaa, father and mother of that Queen Tyi whose influence played so great a part in Akhenaten's religious information. The tomb was intact, and the objects it contained were as perfectly preserved as if they had been shut up only a few weeks. Most startling of all was the discovery of a jar of honey, still liquid and still preserving its characteristic scent after 3,300 years.—The Daily News.

I have an uncle that lives in Boone about five blocks from the business part of town, which has a population of 15,000. He has 39 hives, and has not had any complaints about them except that when he took the honey off, a neighbor got stung; but he did not say anything, as it does not often happen.—Forrest McHose, Boone County, Iowa.

We might have added a **big** postscript in **extra big** letters to the article you received some time ago. In that article we bluntly stated (and considered it the truth) that we needed no cellars. If you could see us today, you would think we were simple prevaricators. With the thermometer hovering about 10 degrees, snow anywhere from two to four feet deep, everything paralyzed, and no street cars running you might wonder how we expected to save our poor bees that were exposed to such conditions. Yesterday the writer spent considerable time in covering his completely up with snow, believing that that would be better than to leave them exposed to a biting wind. Doubtless, there will be some losses—more than we anticipated.—E. J. Ladd, Multonomah County, Ore.

On page 441, July, 1919, Gleanings, mention is made of one colony robbing a queenless colony. Why, boys, just take the queenless colony and put it on top of the robber colony.—James Spray, Madison County, Mont.

I am trying a new scheme this winter whereby bees are wintered in double brood bodies, by placing a regular cover between the two bodies with the Porter escape left out. All so fixed are wintering in the upper story, which should prove much warmer as arranged. Has anyone ever tried it?—John E. Roebling, Hamilton County, Ohio.

We had a bad drought for over 12 months all over Australia. The bee industry suffered great loss, and honey went up 100 per cent in price. Even if this drought gets broken soon, next season can give only a poor harvest, as bees that are left are very weak and sickly—and so is the Australian flora.—T. Volkofsky, Mount Boppy, N. S. W., Aus.

OUR HOMES

A. I. ROOT

And whosoever will be chief among you, let him be your servant.—MATT. 20:27.

If I then, your Lord and Master, have washed your feet; ye, also, ought to wash one another's feet.—JOHN 13:14.

Blessed are the meek; for they shall inherit the earth.—MATT. 5:5.

I HAVE told you (perhaps several times) of "running away from my funeral, riding a bicycle," when the doctors said, about 30 years ago, that I would never be a well man again. Yes, they said further, I probably had but little time to live. Well, dear friends, I am continually thanking God, that now at 80 years of age I am *still* keeping that funeral away back—in fact, almost out of sight, off in the distance. By the way I verily believe that my coming to Florida in the winter time is a great help in getting the start of *my* especial funeral.

On one of those wheel rides across the State of Ohio, I got caught in a summer shower, and, when I reached a hotel in a little town just about dinner time I was too muddy to go into the nice dining room without a good brushing. My shoes were especially untidy. The landlord said there was no bootblack in the town, but he guessed at the little shoe-shop across the way they would fix up my shoes. My application, however, didn't suit.

"Who sent you over here to have your shoes shined?" demanded the proprietor.

"Why, the landlord said he guessed *you* could make me presentable."

At this, being a profane man, he gave his neighbor a blessing for sending *him* such a customer.

"Here, stranger, are blacking and a brush and you are quite welcome to them, but —! —!" etc.

The above was brought to mind by a remark in the *Sunday School Times*, by our good friend Ridgeway, as given below:

> Lesson 9.—Jesus Teaches Peter True Greatness. (JOHN 13:5-16, 36-38.) The great man is the man who wants to serve the other fellow. The tendency of the time is less work. Is this a good thing or not? No work, no eat. Are we coming to the time when class lines shall be no more? Every fellow ready to black the other fellow's shoes, instead of his eyes?

"Every fellow more ready to black the other fellow's shoes, instead of his eyes." Many thanks, friend Ridgeway, for the bright suggestion. But come to think of it, it is only the old, old story of loving even your *enemies* and doing good to them that hate you. This is what the world, yes the whole *wide* world, needs most of all just now.* It isn't *men folks* alone that need Ridgeway's beautiful figure. We want girls and women that will be more ready to "shine each other's shoes" than to damage reputation by thoughtlessly repeating and spreading careless gossip. In regard to taking up menial service when asked, without being offended, my old, old text comes in nicely here: "Great peace have they who love thy law, and *nothing shall offend them.*" And again, some one has said, "No insult can be given, where none will be taken."

There is a new potato out in the garden that I hope is going to bless the world. I will tell you more about it later.

In closing this Home paper permit me to thank the many kind friends who have sent Mrs. Root and myself not only a multitude of Christmas and New Year greetings but so many kind words that we really cannot reply personally to all of them. As the new year opens up before us, the second electric windmill is ready, and only waiting for some delayed freight that contains the belt.

"THE PEACE OF GOD WHICH PASSETH ALL UNDERSTANDING."

(Written for the Tennessee State Beekeepers' Convention.)

Dear friends, while I write on this Thanksgiving Day, great things are coming to pass, not only in this nation of ours, but things that are of late getting to be *world wide.* Things are happening that we should be most devoutly thankful for; and also some things that are not exactly in line with our proud boast that this is "the land of the free and the home of the brave."

While I write, my latest news is that the coal mines, at least many of them, are deserted, right as winter is coming on. I learn that in Ohio not only factories but even *schools* are closed for lack of fuel.

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*Suppose the parties in the recent coal strike (yes and other strikes) should turn about and show a readiness to "shine shoes" or "wash feet," what would happen to this world of ours?

Not only our President, but our great nation back of him, has declared that the mining of coal *must* go on; but, to some extent at least, law seems to be defied. Does this not come pretty near anarchy and civil war?

Does it not look like what we are told, "There shall be wars and rumors of wars"? But, praise the Lord, right after the above we read "but be ye not troubled; for such things must needs be."

When I was just getting into the city of Cincinnati, on our way down here to Florida, I was up, as usual, watching the sun rise. While thinking of our troubled nation and the words, "Peace, peace, when there is no peace," all at once something like a voice speaking seemed to say the words at the head of this paper: "The peace of God which passeth all understanding." I presume I have heard these words for years past; but they never seemed to get much hold of me—certainly never before as they did on this occasion. As I looked toward the sunrise, it almost seemed as if they were written across the sky. I am not sure whether I said "Amen" out loud, but I certainly said it mentally; and almost ever since I have been rejoicing, as I repeat the words over, especially the last three.

No matter what happens in this world of ours, if we are doing our level best to fight the evil, it is our privilege, as followers of the Lord Jesus Christ, to have thru life and thru death that "peace which passeth all understanding."

This recalls another text that has been a joy to me for years. "Great peace have they who love thy law, and nothing shall offend them." If we love God's law, and it is our "counsel" day and night, we are on the road to *both* of these most gracious promises; and finally we shall get to that promised land, where "nothing shall offend them." My friend, do you get "offended" occasionally? Maybe you have in times past got offended at your old friend A. I. Root. Please don't think hard of him. Try to remember he has so very *many* friends it is hard to keep them all in mind, and besides he is now almost 80 years old.

Just one more text to help in getting into that promised land. "Let the words of my mouth, and the meditation of my heart, be acceptable in thy sight, O Lord, my strength and my redeemer."

About 50 years ago all my friends were worried because I had "gone crazy" on two things, bees and honey, and prohibition. May God be praised that I have lived to see both—shall I say, "go over the top"?

A few days ago Howard Calvert, my

Rear view of our humble Florida home.

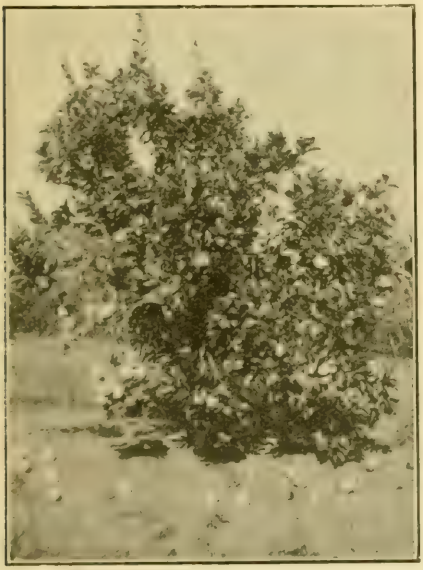
grandson, drove me thru the great city of Cleveland, Ohio. There were miles and miles of automobiles, both gasoline and electric. It made me think of a swarm of bees; but instead of *bees* they were automobiles—some of them costing many thousands each. How about *gasoline* for all the cars to come, saying nothing about *flying machines?*

Well, dear friend, I am crazy still, but it is not altogether bees and prohibition. Just now it is electric windmills. When the miners refuse to mine the coal, and the gasoline of the world is gone, we are going to reach up and grasp the wind and, I hope, thank God for it. It is wind electricity that gives me the light to write this long article, and a wind-propelled automobile will probably carry it to the postoffice.

I am very happy just now in preparing to erect my second electric windmill, and I expect it to warm the house, or help to do so, and maybe do the cooking.

OUR FLORIDA HOME; SOME GLIMPSES OF IT.

Picture No. 1 shows two orange trees and one grape-fruit tree. It also gives a glimpse of the electric windmill that is always "busy;" at least it seems to be, for rarely do we see it standing still a whole hour, altho there is not always wind enough to store even 7 cells of the 28-cell Exide batteries on the electric automobile. The picture shows only a small part of the fruit. The cluster on the grape-fruit tree where I stand contained about 20 fruits when we reached here in November. Picture No. 2 shows a closer view of this tree. It was originally an orange tree, but the bud died and left a strong shoot of the wild lemon. One day when my neighbor Abbott was over, he took out his knife and set a grape-fruit bud in it. This bud grew over 10 feet the first year, and in the second it bore several fruits. Later, a severe frost cut it back, and we thought it was killed. However, it improved and now has a pretty good load of fruit.



The grape-fruit tree that wouldn't die, but finally gave us a single cluster of about 20 fruits.

The Carica Papaya, with its single bunch of 20 fruits; also Wesley, the colored gardener.

I introduce to you No. 3 by copying from a metal label sent me by the Department of Agriculture on a grafted papaya, as follows:

> CARICA PAPAYA.
>
> Papaya. Rapid growing fruit tree, reaching 25 feet; in ten months bears numerous melon-shaped fruits on its trunk. Good varieties deliciously sweet with characteristic flavor; relished as breakfast fruit. Easily digested, containing powerful papain ferment. Try as annual in northern Florida and Texas. Easily grown in hot-house. Both sexes required.

This is a well-known fruit here in Florida, but it contains usually a large number of seeds, which is a sort of handicap. A missionary some time ago sent me a few seeds of what he called a "seedless papaya." Of course, it hadn't been made *entirely* seedless, for how could we get seeds if so? I planted the seeds, but secured only two plants, and providentially these two were male and female. When we arrived in November I was rejoiced to find the tree, with a load of fruit, some 30 or 40 in all.

In fact, the load was so heavy that the tree would soon have tipped over with the roots up in the air, and I was obliged to drive down three stakes to keep it on its feet. How about the "seedless"? I am glad to tell you we have had two *small* melons without even a single seed, and one containing only *one* seed. Most of the larger fruits have about the usual number of seeds, some perhaps as many as a hundred. We have one or more ripe melons almost every day and everybody, so far as I know, calls them "delicious." Let me digress a little. I often, yes *very often*, thank God for the many kind friends I have found. They seem to be scattered all over the face of the earth; and what is more, they are real "honest to goodness" friends. The missionary who sent the papaya seeds is one of them, and our colored friend "Wesley," (Wesley Welch) is another.

You see when the photographer (*another* "friend") was all ready he wanted some one to hold the leaves away so as to expose the ripening yellow fruit. Wesley was spading near and I asked him to do this; but, as he had just been making concrete for the new windmill piers, and was pretty well covered with cement and mortar, he was reluctant to have his picture taken. However, I told him I would explain to our readers when I introduced him. I sometimes think among the great list of friends I have mentioned, there are few more devoted ones than my humble friend and helper, Wesley.

A few seeds from this plant will be mailed to any one who sends an addressed and stamped envelope to *The A. I. Root Company, Medina, Ohio.*

THE NEW ANNUAL WHITE SWEET CLOVER.

See what is said about this clover on page 693, October, aside from what mention has been made in different issues during the past year. Here is something more in regard to it which we clip from Field's *Seed Sense* for October:

A GIANT ANNUAL SWEET CLOVER.

Prof. Hughes, head of the farm crops department of the Iowa State College, Ames, Iowa, has developed something alsolutely new in a quick growing annual form of the big white sweet clover, *Melilotus Alba.*

He first found it as a sport, a single plant, in a field of the biennial white sweet clover, which bloomed the first year. He saved the seed of this and planted it separately and by continual selection got it to come true to type.

He sent me just a little package of 50 seeds last year which I planted in our trial grounds and raised over a pound of seed.

This year I planted that pound of seed on about an acre of our trial grounds and altho we were late getting it planted we got a good yield of seed and will have quite a bit to spare now.

It is in every way identical in appearance with the big biennial type and grows to the same size, say 5 to 8 feet high, but does it all in about 4 months. I took a photograph the other day of a plant that stood over 7 feet high and full of bloom and seed, in only 130 days from seeding, but did not get a cut made in time for this issue of *Seed Sense.* Will try to show it next month.

Ours was planted May 9 and the photograph was made Sept. 19, at which time most of the plants had ripened a large quantity of seed and were still blooming and making more seed and will probably keep on until frost.

The first blooms appeared at about 80 days from seeding and the bloom has been continuous from then on.

It is going to be a great crop for early pasture, as you can get action the first year and if seeded early the bloom should be continuous from about July 1 on until frost.

Its greatest value, however, will be as a regular farm crop for pasture, hay, or plowing under. It grows very fast and makes an enormous growth. In fact, it makes as much growth in four months as the regular biennial type makes in fifteen months and seems to be in every way identical except for its annual habit of growth. In fact, at first glance you could not tell a field of annual from a second year field of the biennial.

Prof. Hughes is anxious that this new annual white sweet clover should be given as wide distribution as possible; so I am going to put it out entirely in trial packages at $1.00 each. Anyone can afford to try it at this price and we will continue filling orders in this way as long as our supply lasts, except that of course we are going to save a good big lot for our own planting.

Price: trial package, $1.00 by mail, postpaid.

You will see by the above the price of a trial packet is $1.00; but in our October number I have it 50 cents. Well, friend Field (I suppose in consideration of the advertising Gleanings has given him) writes that readers of Gleanings can have the one-dollar packet for fifty cents.

TWO REPORTS FROM THE NEW ANNUAL WHITE SWEET CLOVER.

I enclose herewith a photograph of a single plant of Prof. Hughes' big annual white sweet clover, showing the remarkable growth it makes.

This plant is from seed planted May 9th and was photographed Sept. 19, or at a little over four months of age. It has been blooming and ripening seed for some time, but you notice it is still in bloom. This is one peculiar characteristic of this plant. It seems to be practically ever-blooming from the time it starts in June or early July until frost.

HENRY FIELD.

Shenandoah, Iowa, Oct. 17, 1919.

Dear Mr. Root:—I am enclosing herewith a photo of the annual sweet clover which I grew from the seed you so kindly sent me. These plants stand 8 feet, 4 inches high and commenced to bloom on Aug. 16—just what we want. They are still blooming, and bees are working some today.

Yours sincerely,

M. Y. CALCUTT.

Seattle, Wash., Oct. 10, 1919.

Dear Mr. Root.:—I wrote you for a few seeds of the new sweet clover. I planted, I think, in September and transplanted this spring and cultivated in my garden. Some of the plants are near 8 feet high and the bees are still at work on them every day. Thank you for same.

St. Joseph, La., July 12. W. R. BAKER.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Heartsease honey in 60-lb. cans.
O. R. Carr, Avon, Ills.

FOR SALE.—Clover extracted honey in 5-lb. pails. L. S. Griggs, 711 Avon St., Flint, Mich.

FOR SALE.—Choice Michigan white-clover honey in 5-lb. pails, 12 in case or 34 in barrel.
David Running, Filion, Mich.

FOR SALE.—New crop clover honey, two 60-lb. cans to the case. Sample 20c.
W. B. Crane, McComb, Ohio.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Raspberry-milkweed honey in new 60-lb. cans (2 in case).
P. W. Sowinski, Wharton, Ohio, R. D. 1.

FOR SALE.—Four tons choice clover honey, extra well ripened, packed in new 60-lb. tins, two in a case. Wish to sell in one lot.
Lee & Wallin, Brooksville, Ky.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey, in 60-lb. cans, at 22½c per lb. f. o. b. Brooksville. Sample 25c.
W. B. Wallin, Brooksville, Ky.

We have a very choice lot of white clover honey for sale at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—3,000 lbs. amber honey for feeding in new 60-lb. cans, 16c per pound f. o. b. Macon, Miss. Guaranteed free of disease.
Geo. A. Hummer & Sons, Prairie Point, Miss.

FOR SALE.—10,000 lbs. clover and 5,000 lbs. clover-heartsease honey at $24.00 per case of two 60-lb. cans, f. o. b. Oto. Sample, 15c. Also 200 cases No. 1 comb honey. J. D. Beals, Oto, Iowa.

FOR SALE. — Extracted honey, fine quality clover, 25c; clover and buckwheat mixed about half and half, 20c. Two 60-lb. cans to case, in 5-lb. pails, 3c a pound extra. Some buckwheat comb honey at $6.50 per case of 24 sections.
H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Our crop of honey is now ready for shipment. It is a good grade white clover with a very small trace of basswood, almost water-white It is put up in new 60-lb. tin cans, two to the case. This honey was all produced by ourselves above queen-excluders in nice white combs. Then combs were provided so that no honey was taken off until after the season when it was thoroly cured by the bees. It costs more to raise a crop of honey this way, as we do not get as much per colony; so we have to have a little more money for this fancy article than the ordinary honey on the market. Try a small order and we feel sure you will buy no other. We can furnish at the following prices f. o. b. Northstar, one 60-lb. can $15.50. In cases of two cans $30.00 a case in any sized orders. The crop is short this year, and will not last long at these prices. We feel quite sure that the price will not be any lower; so do not be disappointed by not ordering early if you are looking for honey as good as money can buy.
D. R. Townsend, Northstar, Mich.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey; but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many, at only 25c per pound on car here at Northstar. Kindly address, with remittance.
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Small lots of off-grade honey for baking purposes.
C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED. — Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—Comb and extracted honey. Send sample of extracted and quote your best wholesale price f. o. b. your station, how packed, etc., in first letter.
D. A. Davis, 216 Greenwood, Birmingham, Mich.

BEESWAX WANTED.—During February I will pay 42c per lb. cash for average yellow beeswax, delivered here. State quantity and quality and await reply before shipping.
E. S. Robinson, Mayville, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 40c cash, 42c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.
The A. I. Root Co., Medina, Ohio.

WE BUY HONEY AND BEESWAX.—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to a case. Extracted honey, quantity, how packed, and send samples. Charles Israel Bros. Co., 486 Canal St., New York, N. Y.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax. E. B. Rosa, Monroe, Wisc.

FOR SALE

Root's Goods at Root's Prices. A. W. Yates, 3 Chapman St., Hartford, Conn.

HONEY LABELS.—New designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—300 10-frame comb supers, good as new. J. A. Everett, Edgewater, Colo.

A full line of Root's goods at catalog prices. Catalog on request. Will buy your beeswax, 40c cash, 42c trade. A. M. Moore, Zanesville, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

STILES BEE SUPPLY COMPANY, Stillwater, Okla. We carry a full line of Root's Bee Supplies. Beeswax wanted. Free catalog.

FOR SALE.—Second-hand hives, 8-frame, in good condition. Mostly California redwood. Write for prices. R. B. Williams, Ingleside, Texas.

FOR SALE.—Good second-hand 60-lb. cans, two to the case, used only once, 60c per case, cash with order. E. B. Rosa, Monroe, Wisc.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies. R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition, at 50c per case. Buy them now for next season's honey crop. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Comb foundation at prices lower than you had thought possible. Wax worked for cash or on shares. Satisfaction guaranteed. E. S. Robinson, Mayville, N. Y.

FOR SALE. — Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog. Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—Cheap, 400 supers, Root's dovetailed, 8-frame, 4¼ x 4¼ x 1⅞. 100 never unpacked, rest painted and as good as new, with some sections. Wm. J. Costello, 1038 Penna. Ave., Elmira, N. Y.

FOR SALE.—Reversible two-frame Cowan extractor, 25 colonies bees in standard 10-frame hives and equipment. Went into winter in good condition. State inspected. Sell now or later. A. O. Smith, Loogootee, Ind.

FOR SALE.—200 Root standard 10-frame hive bodies, nailed and painted, including Hoffman frames, full sheets foundation, wired, electrically embedded, 100 bottom-boards, 100 galvanized covers. All well painted. Also 100 hives of bees. Chas. Schilke, R. F. D. No. 2, Matawan, N. J.

FOR SALE.—25 shallow supers or brood-chambers, 5 11/16 in. deep and frames, 25 comb-honey supers with section-holders and fences for 4¼ x 4¼ x 1½ plain sections, queen-excluders, Alexander feeders, all for 10-frame hives; also a queen-rearing and mating outfit. H. Shaffer, 2860 Harrison Ave., Cincinnati, Ohio.

FOR SALE.—1,000 Standard beehives in flat, 8- and 10-frame sizes; supers with sections; full depth and shallow extracting frames. Entire lot new and strictly first class. We will sell in large or small quantities at low prices. The Stover Apiaries, Helena, Ga.

FOR SALE.—75 Root 10-frame hive bodies or full-depth supers with metal-spaced frames. New goods, 5 to a crate, $6.00 per crate, f. o. b. Allensville, Ky. 120 lbs. M. B. foundation in wood for L. frames, 30 lbs. to box, $20.00 per box, f. o. b. Allensville, Ky. Porter C. Ward, Allensville, Ky.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—150 section shipping cases nailed up with glass front holding 20 4 x 5 plain sections, 15c each. New nucleus cages nailed ready for use; 20 3-fr., 20c each; 57 2-fr. 15c each; 28 3-lb. cages, 30c each; 148 2-lb. cages 20c each; 150 1-lb. cages, 15c each. The Hyde Bee Co., Floresville, Texas.

FOR SALE.—75 8-frame metal covers, including inner covers, 75c; 7 Alley traps, wire, 10-frame, 30c (weather beaten); one 4-frame standard extractor (not slip gear), $30.00; 25 10-frame comb-honey supers for 4¼ plain 1½ sections with section-holders and fences, $1.25, painted. Richard D. Barclay, Riverton, N. J.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10-frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

FOR SALE.—New and second-hand equipment. 400 comb-honey supers, 4¼ x 4¼ x 1⅞, 10-frame; 2-frame extractor; 100 shallow extracting supers; 10-frame Bartlett Miller capping melter; 5 Dadant hives with one extracting super; Root capping melter; 100 8-frame hives, complete; one steam knife with generator; 100 8-frame hives, covers, excelsior; 150 fences 4¼ sections; 100 8-frame hives, bottoms; 2 Standard smokers, 3 Junior smokers; 400 Hoffman frames, new; 500 metal-spaced frames, new; 100 pounds Superior medium brood foundation; 67 pounds Dadant's medium brood foundation, 4½ x 16½; 16 10-frame hive bodies, new. All good, used but one season, and some never unpacked. Write for prices on what you want. Sunnyside Apiaries, Fromberg, Mont.

REAL ESTATE

FOR SALE.—20 acres of timber land at Genoa, Miller Co., Ark. Cheap. Address W. J. Adams, 5408 Prairie Ave., Chicago, Ill.

WANTS AND EXCHANGE

WANTED.—From 10 to 50 colonies of bees, for spring delivery. C. Countryman, Coxsackie, N. Y.

WANTED.—Second-hand typewriter. Give price, description, and make. Ed. Garner, Urbanette, Ark.

FOR SALE OR TRADE.—One minute postal camera and one Boswell stereopticon outfit. Van's Honey Farm, Hebron, Ind.

WANTED.—Used 8- and 10-frame standard hives and supers. W. O. Hershey, Landesville, Pa.

WANTED.—A good supply of wire entrance guards, wire only, cheap for cash.
C. E. Corbett, Currie, N. C.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Used six- or eight-frame power extractor, also pump. Describe fully and give price.
C. E. Swenson, 1522 12th Ave., Rockford, Ills.

WANTED.—200 or less colonies of bees (any style hive) for spring delivery.
A. W. Smith, Birmingham, Mich.

WANTED.—10 to 50 colonies of bees. What have you to offer? Address Albert F. Roorda, 10505 So. La Salle St., Chicago, Ills.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut St., Cincinnati, O.

WANTED—To buy small apiary of 50 colonies more or less, in good locality, guaranteed free from disease. Ontario, west of Toronto, preferred. A. Millard, c o Chas. Annis, Pickering, R. D. No. 2, Ont., Can.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. $1.50 per year. 15 cents per copy. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens. No bees.
W. G. Lauver, Middletown, Pa.

Well-bred bees and queens. Hives and supplies.
J. H. M. Cook, 84 Cortlandt St., New York.

QUEENS ON APPROVAL.—Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

QUEENS ON APPROVAL.—Bees by package or colony. Birdie M. Hartle, Reynoldsville, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—1920 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

BEES AND QUEENS.—May 1st delivery; also would contract a carload of nuclei, very reasonable. Co-operative Honey Producers, Overton, Nev.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, $1.50; untested, $1.00.
J. W. Sherman, Valdosta, Ga.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—210 colonies of Italian bees in 8-frame hives with about 100 supers and 100 shipping cages at a bargain. C. H. Cobb, Belleville, Ark.

FOR SALE.—2-lb. packages Italian bees with queens and 2-frame nuclei with queens. Can guarantee shipment April 20.
O. J. Spahn, Pleasantville, N. Y.

FOR SALE.—Golden and three-banded queens untested, April, May, and June delivery, $1.25 each; $12.50 per doz. Satisfaction.
R. O. Cox, Greenville, R. D. No. 4 Ala.

We will ship 2-lb. packages and full colonies only this season. Three-banded Italian queens any quantity. Send for prices. J. A. Jones & Son, R. D. No. 1, Box No. 11-A, Montgomery, Ala.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

BEES BY THE POUND.—Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

Bees by the pound a specialty; 2000 lbs. for May delivery, 1920; 200 Italian queens for sale with above bees. Write for prices.
A. O. Jones & H. Stevenson, Akers, La.

GOLDENS THAT ARE TRUE TO NAME. 1 selected untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.
Garden City Apiaries, San Jose, Calif.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees: the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, $2.00; six, $7.50; doz. $14.00; tested, $4.00; breeders, $5.00 to $20.00 J. B. Brockwell, Barnetts, Va.

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.50 for 10; $1.10 each when 25 or more are ordered. Allen Latham, Norwichtown, Conn.

FOR SALE.—Bees, good hybrid stock from outyards. Queens, three-band Italians carefully bred at home yard. No disease. Bees with untested queens; 1 lb., $3.60; 2 lbs., $5.50; 3 lbs., $7.40. Write for quantity rates.
A. R. Graham, Milano, Texas.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—Italian queens from some of the best stock in the U. S., mailed as soon as hatched. Safe arrival guaranteed to any part of the U. S. and Canada. All queens mailed in improved safety introducing cages. Order early. Send for circular. Prices, April to October, 1. 75c; 10, $6.00; 50, $27.50. James McKee, Riverside, Calif.

THE BEES THAT PLEASE. Three-band leather-colored Italians, hustlers, none better, 2-lb. packages only. Untested queens, $1.25; 2-lb. packages, $4.75. Ready to ship about April 15. 25 per cent in advance, balance to be paid before bees are shipped. Write for circular.
J. M. Cutts, R. F. D. No. 1, Montgomery, Ala.

We have enlarged our queen yard considerably. We can take care of orders better than ever, large or small. April 15 to June 1, untested queens, $1.25; tested, $2.50; untested, $115.00 per 100. After June 1, $1.00 each or $90.00 per 100. J. A. Jones & Son, Montgomery, R. D. No. 1, Box 11a, Ala.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

1920 prices on nuclei and queens. Miller strain. Queens, untested, $1.50 each; $15.00 per doz.; tested $2.00 each, $22.00 per doz. One-frame nucleus, $3.00; two-frame, $5.00; three-frame, $6.50, without queens, f. o. b. Macon, Miss. We have never had any bee or brood disease here. Will have no queens except for nuclei until June 1. Safe arrival and satisfaction guaranteed.
Geo. A. Hummer & Sons, Prairie Point, Miss.

FOR SALE.—350 colonies Italian bees in Monroe and Baldwin Counties, Ala., in 10-frame Langstroth hives, Hoffman frames. Plenty supers and supplies for this year. No disease. One 6-frame Root automatic extractor, and other fixtures; extra good range; reason for selling, am crippled and not able to attend to them. Come, look it over. A bargain for cash.
W. H. Owens, 58 S. Conception St., Mobile, Ala.

FOR SALE.— 640 colonies of bees with 2,000 supers of drawn comb; 200 empty supers; 200 comb-honey supers with sections; queen-excluders for every colony; 300 escape-boards with escapes; 1 8-frame power extractor, 2 H. P. gas engine; 1 4-frame hand extractor; 3 2-frame hand extractors; 10 1,000-lb. honey tanks. This is one of the best equipments east of the Mississippi River. All in A-1 condition. Price $8,000.
Virgil Weaver, Falmouth, Ky.

RED CLOVER ITALIAN BEES and queens in two and three-pound packages for sale. My bees have taken first prize at the North Carolina State Fair. Our bees are giving wonderful results the entire U. S. A. over and Canada. We have shipped bees to nearly very State in the U. S. and have had wonderful success. We ship bees by parcel post mostly with the privilege of the cages returned to us. Our bees are wonderfully good honey-gatherers, and are beautiful queens, free from foul-brood disease of any kind. You will make no mistake in buying them. First come, first served. Deliveries, May and June, 1920. Write us your needs.
H. B. Murray, Liberty, N. Car.

FOR SALE.—Bees in two-pound packages only, with queen, sent by parcel post, package paid, delivery and satisfaction guaranteed. Price of two-pound package including queen, $6.50. For 12 or more, $6.25 per package. Empty cases to remain my property and to be returned at my expense. Queens without bees, $1.50 each, or $15.00 per dozen. Tested queens, $2.00 each. The above prices are high, so is the price of a Pierce-Arrow car. My queens are leather-colored and of the highest honey-gathering qualities. A customer in Wisconsin writes that the two-pound packages sent him gave over 300 pounds surplus. I have lots and lots of letters from last year's customers who state that their two-pound packages paid for themselves three times over. Let me book your order now with 10 per cent cash, balance five days before you desire shipment. Prompt service, fair treatment, and the high qualities of my queens justify the prices I am charging. Jasper Knight, Hayneville, Ala.

MISCELLANEOUS

Brother trappers, I give you printed instructions how to make bait, tan skins, remove skunk odor. Best trapping methods. O. Johnson, Thayer, Iowa.

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

MAPLE SYRUP.—I am now booking orders for pure maple syrup to be delivered in April. A good bee-food. Write for prices.
G. E. Williams, Somerset, R .D. No. 4, Pa.

FOR SALE.—Eastman camera with complete outfit, perfect condition, size 5 x 7, cost $60. First $25 takes all.
S. C.Jones, 505 Ave. A, Schenectady, N. Y.

HELP WANTED

We can use some good competent help in getting up packages in April and May.
The Penn Co., Mayhew, Miss.

WANTED.—Three queen-breeders and three practical beemen. Write
Northropic Honey Co., Guatemala, C. A.

WANTED.—Man to tend about 300 swarms of bees. Steady employment to the right party. State wages and experience. S. R. Stewart, Rifle, Colo.

WANTED.—Good beeman to run 500 colonies bees for extracted honey during coming season. Give references, experience, and salary expected first letter. Dr. D. W. Gibson, Beaver, Utah.

HELP WANTED.—Assistant to help in large bee business. Excellent chance for advancement to foreman with big wages to right party.
M. E. Ballard, Roxbury, N. Y.

WANTED.—Man, season of 1920, to work with bees. State age, experience, and wages. Give reference. Permanent employment to right man. The Rocky Mountain Bee Co., Box No. 1369, Billings, Mont.

WANTED.—A good commercial queen-breeder, begin March 1. A good position, and with a future to it, for the right man. Give full particulars in letter of application.
W. D. Achord, Fitzpatrick, Ala.

WANTED.—An experienced queen-breeder and also helper in our package department. Would like to have helper experienced in handling a Ford car. State experience and salary expected in first letter. M. C. Berry & Co., Hayneville, Ala.

WANTED.—A proficient ambitious man to help handle 250 colonies of bees for extracted honey for season of 1920. Also capable of running Ford truck. Give experience, good references, and wages wanted in first letter.
J. W. Hackney, Weldona, Colo.

WANTED.—A willing and reliable, clean young man to assist with bees in out-yards. Will give you my experience and wages. State experience you have had, age, weight, height, and wages expected. Board and lodging furnished. Start work about March 1st. A. L. Coggshall, Groton, N. Y.

WANTED.—The Boulder Apiaries, one of the largest and most modern and up-to-date producers of extracted honey in the West, wants two experienced beemen for the season of 1920. State full particulars in first letter.
E. A. Knemeyer, 2328 South St., Boulder, Colo.

HELP WANTED.—Will give experience and fair wages to active young man not afraid of work, for help in large, well-equipped set of apiaries for season, starting in April. State present occupation, weight, height, age, and beekeeping experience, if any. Morley Pettit, The Pettit Apiaries, Georgetown, Ont.

WANTED.—One experienced man and students, as helpers with our 1,000 colonies. Best opportunity to learn the business from A to Z, in the actual production of carloads of honey. Theory also. Write immediately, giving age, height, weight, habits, former employment, experience, references, wages, photo, all in first letter. E. F. Atwater (former Special Field Agent in Beekeeping, U. S. Dept. Agr. for Calif., Ariz., and New Mexico), Meridian, Idaho.

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Pheasant Eye Beans. New bush stringless—**35 day** Beans, **Hot Squash Peppers.** Carrots sweet enough for Pies. **New Narrow Grain Sugar Corn.** Also Red Skin Dent corn, shock it in **70 days.** Write for complete **Seed Catalog No. 35.**

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Are the hardiest, fresh blooming rose plants in America. Grown on their own roots in the fertile soil of New Castle. We give you the benefit of a life time experience and the most select list in America. Every desirable Rose now cultivated in America is included in our immense stock—and the prices are right.

Our rose book for 1920 ROSES OF NEW CASTLE tells you how to make rose growing a success. Published and elaborately printed in actual colors. Send for your copy today—a postal will do.

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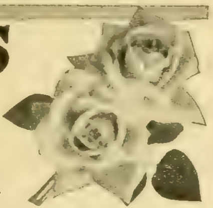

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STRAWBERRIES
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Big crops of fancy berries mean big profits. Write today for our new 1920 book and become convinced how quickly **Kellogg's Everbearing Strawberry Garden** will reduce the H.C.L. in your home and give you a great many dollars cash profit besides. This book pictures in colors and fully describes Kellogg Strawberry Gardens, also the world's latest and most wonderful strawberries.—Kellogg's Big Four and Big Late, Kellogg's New-Race and Kellogg's Everbearers.

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STRAWBERRY PLANTS

$500 to $1200 A YEAR
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The grounds are an important part of the home. A little wonderland of delightfully fragrant flowers near the house, with graceful shrubbery and trees bordering pleasant walks, speaks of an owner who cares!

With a Storrs and Harrison 1920 catalog of seeds, plants, trees and shrubbery before you, plan a setting for your home that will say "somebody lives there." Write today.

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Make better gardens. All are tested for purity and vitality. Have been giving satisfaction for over 50 years. Be sure and try our

5 FINE VEGETABLES, 10c

One large packet each of Bean, Beet, Lettuce, Radish and Tomato—postpaid. All are heavy yielding and exceptionally fine in quality. Try them.

Large CATALOG FREE

Gives helpful cultural directions and offers strictly high-grade seeds at fair prices. *Write for your free copy to-day.*

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GOOD SEEDS

GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Ill.

DOLL will save you Money on Supplies

THERE'S absolutely no need to pay fancy prices for your Bee Supplies this season. On anything you may require DOLL is prepared to quote prices that will surprise you MOST AGREEABLY---prices that mean SAVINGS worth taking prompt advantage of. I've been in this business for twenty years, at the same location---selling dependable supplies and serving the Beekeepers to the best of my ability.

I'm all ready to fill your orders for White Pine Hives, Supers, Frames, Covers, Bottoms, White Basswood Sections, Section Holders, Separators, and Shipping Cases. Also have on hand a complete stock of Foundation, Smokers, Extractors, Queen-excluders, etc. All strictly Standard goods---and Qualities, the best produced.

Mail me an itemized list of your needs for this season; and I will send you price quotations on same--without delay.

P. J. Doll Bee Supply Co.

Nicollet Island Minneapolis, Minn.

CALIFORNIA BEEKEEPERS

Mistakes are expensive. The greater the experience, the fewer the mistakes. The A. I. Root Co. has been in business for 50 years, and this long experience prevents the mistakes often made by the new manufacturer of beekeepers' supplies—mistakes that the beekeepers indirectly have to pay for.

For 50 years our business has been that of manufacturing in large quantities high-grade beekeepers' supplies. Believing that the best are the cheapest in the long run, we have never made any other kind. There is no economy in buying an inaccurately made hive, nor one which will not hold its shape year after year whether it is left in one place or moved from one locality to another. Bees are worth more and sell for a higher price when in standard hives.

The Same Automatic Machinery in California

Much of the same automatic machinery that has made Root supplies famous the world over have been installed in California, thus insuring the same quality of workmanship in Root Goods on the Pacific coast.

In comb-foundation machinery alone no expense has been spared in putting in the biggest and best outfit that can be used for turning out the matchless quality of foundation for which the Root factories are noted. Moreover, an entirely new method of refining the wax and an entirely new design of the mill itself make possible a foundation never before equalled.

See the New Honey-extractor

The new extractor is a success and it is now being manufactured in quantities. Ask to have it demonstrated either at the factory, 1824 East 15th street, Los Angeles, or at the San Francisco branch, 52-54 Main street. Reversing at will without slowing down, and as many times as desired, is a great time saver. Buy the best and you buy the cheapest.

THE A. I. ROOT CO. OF CALIFORNIA

Our Food Page—Continued from page 89.

tender and brown. The oven should be hot at first and then very slow. A young rabbit may need only 1½ or 2 hours to become tender, but an old rabbit needs three or more hours. Replenish with hot water if the water cooks away before it is done. This tastes much like fried rabbit but is more tender and not so dry.

CLUB SANDWICHES.

Cooked chicken or lamb
Cooked bacon
Lettuce
Salad dressing
Buttered toast

Prepare the toast, place a lettuce leaf on one of the slices, sprinkle with salad dressing, add thinly sliced chicken or tender lamb, then another layer of lettuce with dressing, then a layer of bacon which has been baked until crisp, another layer of lettuce with dressing, and finish with the other slice of buttered toast. Trim the edges neatly, cut in two across the corners, and serve at once.

CHEESE SANDWICHES.

Bread
Butter
Cheese

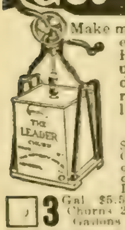
Make sandwiches of the bread and butter with thinly sliced cheese between the slices and toast until golden brown on each side. Serve at once.

NUT CAKE.

½ cup shortening
½ cup sugar
1 egg
½ cup honey
1 cup sour milk
1¾ cups sifted flour
1 teaspoon soda
1 teaspoon baking powder
¼ teaspoon salt
1 teaspoon flavoring extract
1 cup broken nut meats

Cream the sugar and shortening thoroly, beat in the egg yolk and then the honey, add the flour in which the other dry ingredients have been sifted, a little at a time alternating with the sour milk, add nuts and flavor, and fold in the well beaten egg white. Beat very thoroly before folding in the egg white. Bake in a moderate oven about 40 minutes. This will make a delicate flavored gingerbread by omitting the flavoring and nuts and adding 1 teaspoon cinnamon and 1 teaspoon ground ginger. It may also be used as a fruit cake by using raisins or other fruit and spices to taste. If the directions are carefully followed the cake will be of fine texture and soft and light.

Get Churn Free



Make more and better butter. Over 25,000 Leader Churns sold. 7,000 testimonials. A. N. Hollis, says: "Churning was a burden until we got the Leader. Now the children cry to churn. We churn in 3 or 4 minutes." Leader Churns built to last lifetime—light weight—easily cleaned.

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Sold under two plans—1st. Simply order Churn; pay after 30 days trial. 2nd Take orders from your friends — your commission quickly pays for Churn, thus you get your Leader Churn FREE. ORDER NOW.

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☐ 5 Gal $6.00 Churns 3 Gallons
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Send No Money Order direct from this adv. checking size of Churn wanted. You pay express charge only.

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69 varieties. Also Small Fruits, Trees, etc. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 25c. Descriptive catalog free. LEWIS ROESCH, Box L, Fredonia, N.Y

There is Big Money in Strawberries

and other small fruits these days. Strawberries sold as high as 50c a qt., $16. a bushel at wholesale. Are you receiving these high prices as a grower or paying them as a consumer? It makes a vast difference to your pocket book. You can grow nothing that gives handsomer returns. I know of farmers who received $1300 from 1-2 acre last year. If you live in a town a part of your lawn or back yard will make a fine strawberry bed. Our Everbearing plants set in April or May will bear in August and continue until November and give two crops the following season. Get our book, "Farmer on the Strawberry," price 50c postpaid, and you will have all the experts know.

We sell Strawberries, Raspberries, Blackberries, Gooseberries, Currants, Fruit Trees, Roses, Shrubs, etc.

Beautifully illustrated Catalog free.

L. J. FARMER, Box 8, Pulaski. N. Y.

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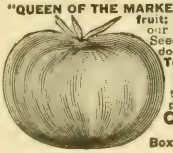

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200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample grapes mailed for 25c. Catalog free. LEWIS ROESCH, Box L, Fredonia, N.Y.

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Signs that will stand the weather. Can be laid by anyone wherever cement is used.

Your name in the apiary, on the lawn, house, barn or driveway gives you individuality.

The above style letter comes in three sizes: 8, 6, and 4 inches high. Write today for our circular.

Easy to set, no rust, no decay, never fades. A permanent, distinctive sign for your apiary, your home, or your wares.

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Vick Quality Seeds Grow the Best Crops The Earth Produces

So testify many hundreds of gardeners, who plant our Big Boston Lettuce, Danish Ball Head Cabbage, Self-Blanching Celery, Danver's Yellow Globe Onions, and who ship their produce to every large market in this country. Write at once for our Catalogue and tell us if you grow vegetables for the market. See actual picture of five acres Lettuce that sold for $7500, also five acres Celery for $5000. See picture, eleven thousand bushels Onions worth $2.00 per bushel.

VICK'S for 1920 GARDEN & FLORAL GUIDE

IT'S FREE WRITE TODAY

A worthwhile book for vegetable growers and all lovers of flowers. Lists the old standbys; tells of many new varieties. Valuable instructions on planting and care. Get the benefit of the experience of the oldest catalogue seedhouse and the largest growers of Asters in America. For 71 years the leading authority on Vegetable, Farm and Flower Seeds, Plants, Bulbs and Fruits. 12 Greenhouses, 500 acres. This book, the best we have issued, *is absolutely free. Send for your copy today before you forget. A postcard is sufficient.*

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For a garden approximately 15x35 ft. One packet each. Rustless Golden Wax Beans, Stringless Green Pod Beans, Detroit Dark Red Beets, Earliest Jersey Wakefield Cabbage, Chantenay Carrots, Vick's Golden Nugget Corn, Stowell's Evergreen Corn, Big Boston Lettuce, Hanson Lettuce, Danver's Yellow Globe Onions, Exquisite Moss Curled Parsley, Hollow Crown Parsnips, Vicks Scarlet Globe Radish, Long White Icicle Radish, Large Ribbed Swiss Chard, Vick's Early Marvel Tomatoes, Purple Top Globe Turnips and one ounce of Spinach. Full size packets regularly selling for $1.50. The entire collection together with garden plan and cultural directions, prepared by experts telling just how to get the best results. **All for $1.00 Postpaid**

Many other valuable collections for any size garden, or for any purpose. Never before has the pressure of high prices so emphasized the value of gardening. *Whatever else you do today, write for* VICK'S GARDEN AND FLORAL GUIDE. IT'S FREE,

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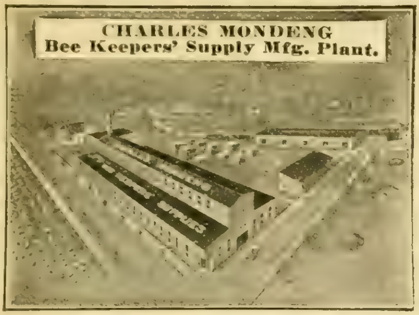
$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once. 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will take Beeswax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

Beeswax Wanted

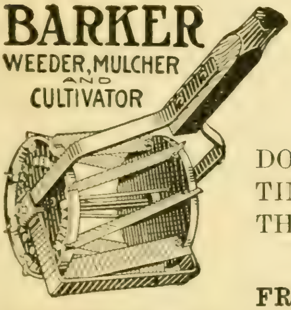
In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas
Established 1899



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"Best Weed Killer Ever Used"

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In spite of the fact that I am paying higher prices than ever before for beeswax, I have decided on a reduction in prices of comb foundation. I now offer 50-lb. lots at the following prices. Smaller quantities are slightly higher.

Medium brood, 72c per lb. Light brood, 75c per lb. Thin super, 82c per lb.

GUARANTEE: I guarantee my foundation to be made of clean pure beeswax, with perfect impression, cut exact size ordered, and packed so as to reach you in good order. Your own wax worked into foundation at lowest rates, for cash or on shares. Send for complete price list.

BEESWAX WANTED. During January I will pay for average yellow wax, delivered here, 42c per lb. State quantity and quality, and await reply before shipping.

E. S. Robinson -:- Mayville, Chautauqua Co., New York

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Every Thing Required for Practical Beekeeping

Order your supplies NOW and save money by taking advantage of the early order cash discounts. We are well prepared to take care of your business; send us your inquiries and we will be pleased to quote you our prices.

Send us your name and address and we will mail you one of our new 1920 catalogues when ready.

AUGUST LOTZ COMPANY . . BOYD, WISCONSIN

QUEENS Bees by the Pound *QUEENS*

Booking orders now with one-fourth down, balance just before shipping. We have for several seasons shipped thousands of pounds of bees all over the United States and Canada.

From Wisconsin: "Last year when my old-time beekeeping friends heard that I had bought bees from a man in Texas they called me a fool; but now I have more bees and more honey than any man in Green county. It is the talk of this part of the woods." (Same party has in his order again for over a thousand dollars' worth for spring shipping.)

From West Virginia: "The State Apiarist pronounced my queen one of the finest queens he ever saw. To say I am well pleased would be to put it mildly. Will want more bees and queens in the spring."

Guarantee shipment to be made on time. **Free** circular explains, also gives prices on bees by Parcel Post, Nuclei, etc.

Prices f. o. b. Here, by Express.

1-lb. pkg. bees,	$2.40; 25 or more...	$2.16
2-lb. pkg. bees,	4.25; 25 or more...	3.83
3-lb. pkg. bees,	6.25; 25 or more...	5.62

Queens.

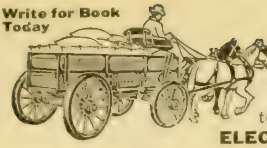
Untested, $1.50 each; 25 or more....	$1.35
Tested, $2.50 each; 25 or more......	2.25
Select tested, each..................	3.00

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALALLEN, TEXAS

E. B. AULT, Prop.

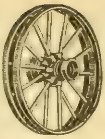
Write for Book Today

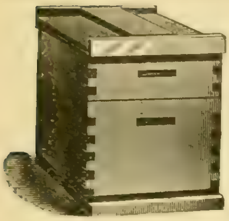


FARM WAGONS

High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.

ELECTRIC WHEEL CO., 23 Elm Street, Quincy, Ill.



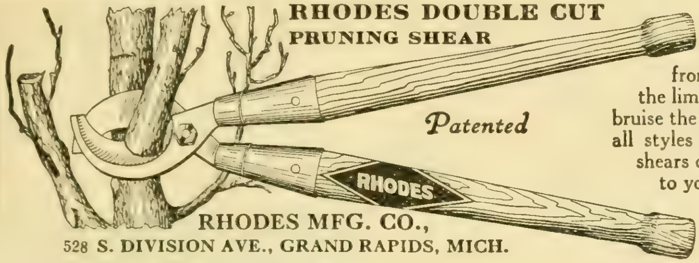


Early-order Discounts will

Pay You to Buy Bee Supplies Now

Thirty-two years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri.



RHODES DOUBLE CUT PRUNING SHEAR

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.

ANNOUNCEMENT

Quality Queens for Spring Delivery

Book your orders now. Head your colonies with the best mothers to be had and take advantage of high honey prices. Beekeepers who insist on the best queens, reared by the best methods known, will be convinced after a trial order that mine have no superiors. Several years' experience on a large scale. Have perhaps reared more queens in each of the past two years than any other queen-breeder up to the present time. Buy queens from the man who specializes in queens.

First: That you may expect prompt service. Next: That you can depend on getting full value for the price you pay. Because queen-work neglected to do something else is sure to show up somewhere, sometime. Last but not least: Know that you get what you order; buy from the man who advertises one strain only from the same yard.

Prices Cash With Order are as Follows

	Before July 1			July 1 to Nov. 1		
	1	6	12	1	6	12
Untested	$2.00	$8.50	$15.00	$1.25	$6.50	$11.50
Select untested	2.25	9.50	18.00	1.50	7.50	13.00
Tested	3.00	16.50	30.00	2.00	10.00	18.50
Select tested..	3.50	19.50	35.00	2.75	15.00	27.00

Doolittle's strain of Three-band Pure Italians have long been recognized as America's standard. Get them here and stock your apiaries with disease-resisters, from a location free of disease.

They are gentle and do justice in the supers. Satisfaction and safe arrival guaranteed or your money back

No nuclei, except to accompany tested or select tested queens. Write for prices.

JENSENS' APIARIES -:- PENN, (LOWNDES COUNTY) MISSISSIPPI

Send to Indianapolis if you want your

Bee Supplies in a Hurry!!

Beekeepers of Indiana, we carry a complete line of Root supplies at this branch, and we give all orders our prompt attention

The A. I. Root Company
873 Massachusetts Avenue Indianapolis, Indiana

Complete Line of

Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping-boxes, and three-frame nucleus colonies.

I. J. STRINGHAM, GLEN COVE, Nassau Co., N. Y.

BEAUTIFUL IRIS

Splendid Collection of Best Varieties. Gorgeous Colors. All postpaid at Price Named.

	Each	Doz.
MME. CHEREAU, white, blue fringed	25c	$2.50
LENOLDAS, dark blue	25c	2.50
SANS SOUEL, yellow, petals wine	20c	2.00
GRACCUS, yellow, petals light wine	20c	2.00
OSSIAN, canary yellow, petals light purple	20c	2.00
SIBERIAN, blue	25c	2.50
FLORENTINE, purple	20c	2.00
CELESTE, sky blue	25c	2.50
FLAVESCENS, lemon yellow	20c	2.00
GOLD COIN, yellow, petals purple	20c	2.00

Collection one plant each variety postpaid $2.00.

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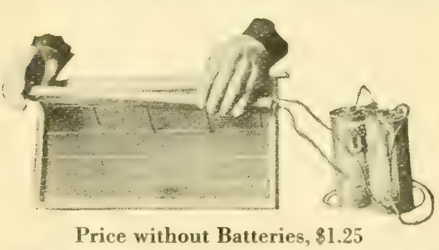
A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Electric Imbedder



Price without Batteries, $1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers Hamilton, Ills.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

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I am booking orders at the following prices: 2-lb. pkg., queenless, $4.65; 3-lb, pkg., queenless, $6.65. Untested Italian queens, $1.35, cash with order.

E. A. HARRIS, ALBANY, ALA.

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Of Highest Quality at living prices. Pleasing, prompt service. No money with order. We pay the freight and guarantee satisfaction. If interested, ask for 1920 Catalog. It explains.

THE PROGRESS NURSERIES
1306 Peters Avenue TROY, OHIO

Hill's Evergreens Grow

Best for windbreaks and hedges. Protect crops and stock. Keep house and barn warmer—save fuel—save feed. Hill's evergreens are hardy, nursery-grown. Get Hill's free illustrated evergreen book and list of 50 Great Bargain Offers—from $4.50 up per Thousand. 56 years' experience. World's largest growers. Write **D. HILL NURSERY CO., Box 2462, Dundee, Ills.** Evergreen Specialists.

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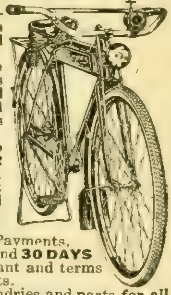
Easy to start. Grows anywhere. Not only a good fertilizer, but produces immense crops. Big money-maker. Crops worth $50 to $125 per acre. Greatest forage plant that grows. You cannot miss it by sowing our superior scarified seed.

Don't delay writing for our 1919 catalog (116 pages) and circular giving full particulars. We can save you money on guaranteed seed.

A. A. BERRY SEED CO., Box 966 CLARINDA, IOWA

NINE MONTHS TO PAY



Immediate possession on our liberal **Easy Monthly Payment** plan—the most liberal terms ever offered on a high grade bicycle.

FACTORY TO RIDER prices save you money. We make our bicycles in our own **new model factory** and sell direct to you. We put real quality in them and our bicycles **must** satisfy you.

44 STYLES, colors, and sizes to choose from in our famous **RANGER** line. Send for big beautiful catalog.

Many parents advance the first payment and energetic boys by odd jobs—paper routes, delivery for stores, etc., **make the bicycle earn money** to meet the small monthly Payments.

DELIVERED FREE on Approval and **30 DAYS TRIAL.** Select the bicycle you want and terms that suit you—cash or easy payments.

TIRES lamps, horns, wheels, sundries and parts for all bicycles—at half usual prices. **SEND NO MONEY** but write today for the big new catalog, prices and terms.

MEAD CYCLE COMPANY Dept. D153, Chicago

AM BOOKING ORDERS NOW for

1920 QUEENS

Untested - - $1.50 each; 25 or more, $1.35
Tested - - - 2.50 each; 25 or more, 2.25
Select tested, each - - - - - - 3.00

Limited amount of bees for early shipment. My descriptive circular tells about it. Write me.

R. V. STEARNS, BRADY. TEX.

Thagard's Italian Queens

I am booking orders for April to October deliveries. My queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

Untested queens - - - - $1.50; 6, $7.00; 12, $13,50
Select Untested Queens 1.75; 6, 9,00; 12, 16.00

I guarantee pure mating, safe arrival, and perfect satisfaction. Circular free.

V. R. Thagard, Greenville, Ala.

Dr. J. H. Black, Ft. Deposit, Ala.

Breeder of

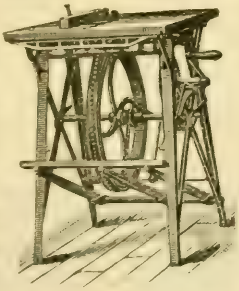
Three-band Italian Queens

These queens must give satisfaction- They must reach destination safely- They are as good as money can buy. Reference as to my Standing: Ft, Deposit Bank.

Untested - - - $1.25; 12, $12.00
Select untested 1.50; 12, 15.00

Dr. J. H. Black, Ft. Deposit, Ala.

BARNES' Hand and Foot Power Machinery



This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS

Bee Supplies

FALCON LINE
BEST GOODS MADE

Get our big discount sheet before buying

C. C. Clemons Bee Supply Co
132 Grand Ave. Kansas City, Mo.

BEE SUPPLIES IN DIXIE

Dependable Goods with prompt service. Save time and transportation costs.

L. W. Crovatt, Savannah, Ga.
Box 134.

Thrifty, Sturdy Trees

New Ohio Beauty Apple

You can be sure when you buy Woodlawn grown fruit trees, vines, and berry bushes that they are thrifty, vigorous growers and heavy bearers. Our 44 years of successful growing experience has been directed towards producing a wide variety of that kind of stock. We have the exclusive sale of the new Ohio Beauty Apple.

Our extensive line of ornamental shrubs, bushes, and perennials are of the same dependable quality as all of our trees are.

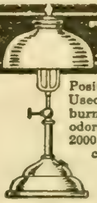
We sell seeds for the vegetable and flower garden. Illustrated 1920 Nursery List contains valuable planting and growing Information. Mailed on request.

WOODLAWN NURSERIES
882 Garson Ave. Rochester, N. Y.

PATENTS Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co

Chas, J. Williamson, McLachlan Building,
WASHINGTON, D. C.

The "BEST" LIGHT



Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

"Special Crops"

A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. $1.00 per year. Sample copy 10c. Address

Special Crops, Box G, Skaneateles, New York

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MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway,

If you have not received 1920 catalog send name at once.

SWEET CLOVER

Buy your Seed direct at wholesale prices. All kinds. Let us save you money on your Sweet Clover Seed. Write for wholesale prices and samples today. Get our big 1920 Seed Catalog Free.

DAVE PECK SEED CO.
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World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

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Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 283

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.,
233-283 Pike St., Cincinnati, O.

"Falcon"

We Have on Hand a Quantity of

Sections Slightly Shopworn

but otherwise good for all practical purposes, which we offer at the following low prices:

50,000 No. 2 4½ x 1½ Plain, at	$7.50
50,000 No. 2 3⅝ x 1½ Plain, at	7.50
50,000 No. 2 4 x 5 x 1⅜ Plain, at	7.50
25,000 No. 2 4¼ x 1¾ 2-beeway, at	8.00
25,000 No. 2 4¼ x 1¾ Plain, at	7.50
20,000 No. 1 4 1/3 x 1¾ 4-beeway, at	8.00
10,000 No. 1 4¼ x 1 15/16 4-beeway, at	8.00

Sold in lots of not less than 5 M. subject to prior sale. Take advantage of these extremely low prices and send us your order today.

Write for catalogue and price list of Falcon Bee Supplies.

W. T. Falconer Manufacturing Co. Falconer, New York

"where the best beehives come from."

"Falcon"

BANKING BY MAIL AT 4%

SURPLUS money which does not work means money wasted. This old-established bank invites deposits BY MAIL at 4 per cent compound interest, enabling everyone to avoid this waste.

Write for detailed information about Banking by mail plan.

THE SAVINGS DEPOSIT BANK CO.
A.T. SPITZER, Pres.
E.R. ROOT, Vice Pres. E.B. SPITZER, Cash.
MEDINA, OHIO

Central West Beekeepers

NOW

is the time to order your supplies. Spring will soon be here, so---

DON'T WAIT

one minute longer. Order your goods now or tell us what you need. We can take care of you with the famous ROOT service. Please remember the announcement of our change of name from The Kretchmer Manufacturing Company to the A. I. Root Company of Iowa. The beekeepers of the Middle West will have our best service.

The A. I. Root Co. of Iowa **Council Bluffs, Iowa**

HERE THEY ARE, MR. BEEKEEPER, AT NEWARK

Wayne County, New York, ready to answer your call, the best of everything ! ! !

Just Read This List

Lewis Beeware, Sections, Shipping Cases, Frames, Hives, Hershiser Wax Press, and other supplies.

Dadant's Unexcelled Foundation, all standard weights and sizes. Also the Electric Wire Imbedder.

Bingham Uncapping Knives, including steam heated with oil stoves and generators.

Bingham Smokers, all sizes, with genuine leather bellows.

Root's Extractors, all sizes of hand and power Machines.

Bee Books written by all leading authors in beedom.

All Sizes of Friction-top Pails and also 60-pound Cans, new and second-hand. Also Cement-coated Nails for nailing beehives and supplies.

All-sized Spools of Tinned Wire, Bee Brushes, Feeders, Queen-rearing Cages, Bee Gloves, Capping Melters, and all practical supplies you will need.

A Market for your Honey or Wax, and a plant to render your Old Combs and Cappings.

Over 1,000 Beekeepers took advantage of this Service Station at Newark in 1919, for the first time. Now *all together* for a greater 1920.

New Catalog Free, and Our Discounts Will Save You Money. Address

The Deroy Taylor Co., -:- **Newark, Wayne Co., New York**

Bees, Queens, Beekeepers' Supplies

PROMPT SERVICE
FAIR DEALING

-:-

The Penn Company
Mayhew, Mississippi

WOULD YOU BE PREPARED?

WHAT IF THE SPRING SHOULD BE A BAD ONE?

and your early flow failed? What if at the same time your bees came thru the winter in bad condition—short of stores? What if you had to do slow feeding for a week or a month? Would you be prepared to meet these conditions, or would you lose several hundreds or thousands of dollars. Make a wise investment. Prepare ahead. Do not wait until experience teaches you. Now is the time to lay in a good stock of FOREHAND FEEDERS—the Feeder that will meet these conditions and save you money, time, trouble, and bees. Write for full information now.

BEE SUPPLIES

We shall be very glad to send you our catalog listing a complete line of supplies. Our line of bee supplies are of the best material, workmanship, and quality. We offer you good service, prompt and fair dealings. We can save you money. Get in your order now before the rush. Write at once for our supply catalog.

QUEENS AND BEES

You will want your queens and bees early in the spring. Will you be too late to get your order in? We are booking orders fast for spring delivery. It doesn't pay to wait; get in your order *now*. Forehand's Three Bands need no recommendation. For over a quarter of a century they have been pleasing the best beekeepers thruout the world. They are the kind that are *surpassed by none but superior to many*. They are thrifty, hardy, gentle, and beautiful. Write at once for our special Queen and Bee circular, giving full description and prices of our queens and bees.

Twenty-seven years of beekeeping enables us to give you goods of the finest quality—the kind that have proved this. Our long experience has taught us to offer only the best goods and best service to our customers.

W. J. Forehand & Sons "The Bee Men" **Ft. Deposit, Ala.**

Foresight

Is Better Than Hindsight

❡ Do you recall in times past that you have promised yourself to "buy early" the next season?

❡ Haven't there been instances where it would have been money in your pocket had you been ready for the bees?

❡ Let us suggest that you buy now for this season---and make it Root's goods. We sell them in Michigan.

Beeswax wanted. Send for our 1920 catalog.

M. H. Hunt & Son
510 North Cedar Street
Lansing, Michigan

Now the Snow Is Flying and Everything Is Snug

for the winter, it is time to think over your wants in our line.

Spring will be here before we know it. Be prepared. Have everything on hand for the time when you will need them.

We have been receiving quite a lot of large orders lately. These people are wise. They know that the early bird catches the worm.

Are You Going to Syracuse for Supplies?

Veils

Smokers

Tools

Hives

Supers

Sections

Foundation

Extractors

Are you an early bird?

Mail us your order now. We have everything in stock, can give your order more attention, and you will be better satisfied.

Drop us a card and we will mail you our new catalog when we receive them.

F. A. Salisbury, 1631 W. Genesee St., Syracuse, N. Y.

113,756 POUNDS OF COMB FOUNDATION

On the date this is written, Jan. 2, 1920, our company has a total in orders for the New Root-Weed Comb Foundation of 113,756 lbs. That is a big lot of comb foundation. It will fill six big freight cars full. We never before have had at this season so many and so large orders for comb foundation as we have today.

WHY are the beekeepers from all over the world sending orders for comb foundation in these amounts to this company? The answer can be given in one word—

CONFIDENCE

When we recently announced a new Root-Weed Comb Foundation, that we believed would prove to be one of the greatest improvements ever made in comb-foundation manufacture, the beekeepers of America believed us. They took some account of our 50 years in the manufacture of beekeepers' supplies and of our long record in ever trying to improve the beekeepers' appliances and utensils. We appreciate this renewed evidence of their confidence in receiving as they have our promise to give them a better comb foundation.

OUR PROMISE

The new process, we told beekeepers, had to do with both the refining of the wax and the milling of the wax sheets. We promised that this new comb foundation would be a product nearer to that of nature's own than any other manufactured foundation. We today re-affirm that promise.

By the new refining process, we are today getting the best wax we have ever secured, with a true waxy aroma that is lacking in all wax refined by the acid processes.

OUR THANKS

At the head of this page, in large type, we have placed the figures that beekeepers have piled up for our New Root-Weed Comb Foundation. Those figures spell the Confidence of the beekeepers of America in the promises and the products of this company. At the beginning of another year, we wish to thank our great host of beekeeper friends for this confidence.

THE A. I. ROOT CO., MEDINA, O.

We Want Beeswax

The tremendous demand for Dadant's Foundation requires that we have a large stock of beeswax on hand and in transit at all times.

We are therefore situated so that we can pay the highest prices, both in cash and in exchange for bee supplies.

Write us stating quantity and quality of beeswax you have to offer and we will give you our very best prices either f. o. b. Hamilton or your shipping point together with shipping tags and instructions.

When ordering your stock of bee supplies for your season's use, be sure to stipulate

DADANT'S
FOUNDATION

Every inch, every pound, every ton, equal to any sample we ever sent out. You cannot afford not to use Dadant's Foundation.

We render combs into beeswax.

We work beeswax into Dadant's Foundation.

We buy beeswax for highest cash and trade prices.

We sell a full line of best bee supplies.

PRICES AND CATALOG FOR THE ASKING

Dadant & Sons, Hamilton, Illinois

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Massachuset
MAR 18 1920
Agricultura
College

Gleanings in Bee Culture

Overcoats On, and Under the Hill.

VOL. XLVIII March, 1920 NUMBER 3

A RED LETTER DAY IN CONCRETE TOWN
CONCRETE
MAIN STREET
OK
STOP GO

That Sign for Your Apiary

SHOULD BE MADE THIS WINTER!

We will mail you on application a small folder on how to make your own signs by using our all-weather-proof burned clay letters. They can be used on buildings, walks, lawns or roadside.

Write for a "Red Letter Day in Concrete Town"

UNITILE
REGISTERED TRADE MARK

The Unitile Co., Columbus, Ohio
Dept. B

Tin Containers

A Complete Line. Your Orders Solicited for

Friction-Top Cans and Pails

Five-gallon Square Cans
with Screw or Solder Cap

Packers' Cans
Open Top or Hole and Cap Styles

Wax Sealing Preserving Cans

Unexcelled manufacturing and shipping facilities.

W. W. Boyer & Co., Inc.
Baltimore, Maryland

"Griggs Saves You Freight"

TOLEDO

We know you are not the fellow who waits until the last minute before ordering his supplies.

We HAVE LARGE stocks of new goods to rush to you the minute your order arrives.

Send us list of goods wanted at once and receive our prices.

Those 60-lb. Cans will soon be gone; better hurry your order in at once. Two men took a car load.

WHITE CLOVER HONEY

Can use limited amount of White Clover Honey if price is in line.

FREE Catalog of BEE SUPPLIES for the asking.

BEESWAX WANTED

Cash or exchange for supplies. We pay highest market price.

"Griggs Saves You Freight"

GRIGGS BROTHERS CO.
Dept. No. 25 Toledo, Ohio

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The Fred W. Muth Company

The GOLDEN MONTHS of OPPORTUNITY

for the successful beekeeper are

FEBRUARY, MARCH, AND APRIL

This is the time of the year to nail and paint the supplies needed for your 1920 crop of honey.

In spite of transportation difficulties and delays we are in position to promise prompt deliveries from our complete stock of famous

LEWIS BEE-WARE

We Render Your Old Combs

and pay the market price for the wax rendered, less 5 cents per pound rendering charges.
WRITE US TODAY

Write for Our Catalog

If you do not receive our catalog each year write at once.

1920 Issue is Now Ready

Besides, your order now will save you money, as there is a tendency for prices to advance still higher.

We are dealers in

Root's Extractors and Smokers --- Dadant's Foundation and the Famous Lewis Beeware

HONEY

When You Have Honey for Sale

send us your sample and give best price delivered here. We buy every time you name an interesting price and remit the day shipment is received. SEND US YOUR OLD COMBS FOR RENDERING.

BEESWAX

If You Want Prompt Shipment, Give Us Your Order Today.

THE FRED W. MUTH CO.

"The Busy Bee Men"

CINCINNATI, OHIO

Two Carloads of Superior Foundation

We had orders on hand February 1st for over two carloads of SUPERIOR FOUNDATION, approximately 60,000 pounds. Our present manufactured stock assures prompt deliveries thruout the season. Our machines have been in constant operation all winter, anticipating the heavy demand, and will be running overtime during the spring and summer months. We have doubled our Ogden factory in size and are adding additional machinery.

We also carry large stocks of SUPERIOR FOUNDATION at our Idaho Falls, Idaho, and Riverside, California, warehouses. For the convenience of our California beekeeping friends we have opened up a branch house at Riverside, Calif., where our Mr. Fred W. Redfield is in charge at present.

BEESWAX WANTED.

We require over 30 additional tons of beeswax at highest market prices during the next four months. There's a reason. Acquaint yourself with the advantages of SUPERIOR FOUNDATION if you have not yet used it.

Special Prices on Request. State Quantity Desired.

Superior Honey Company -:- Ogden, Utah

(MANUFACTURERS OF WEED PROCESS FOUNDATION)

BEE SUPPLIES BEE SUPPLIES

SERVICE & QUALITY

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog---better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & COMPANY

2146 CENTRAL AVE. CINCINNATI, OHIO

HONEY MARKETS

There is little or no change to report in the honey market. Export demand is light, but there is a better domestic retail demand. The quotations made by the Bureau of Markets and by producers as printed below reflect market conditions generally.

U. S Government Market Reports.

HONEY ARRIVALS, FEB. 1-14.

MEDINA, O.—None reported.

SHIPPING POINT INFORMATION FEBRUARY 14.

LOS ANGELES, CALIF.—Cool, clear. Demand and movement slow, market dull, prices slightly lower. Carloads f. o. b. usual terms. Extracted, per lb., white orange blossom 18-19c; white sage, supplies light, 19c; extra light amber sage 17½-18c; light amber alfalfa 15-16c. Beeswax, in l. c. l. lots, 42c per lb.

SAN FRANCISCO, CALIF.—Cool, clear. Supplies light. Cash paid to producers: extracted, light amber sage 14-14½c.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks; prices are for Feb. 14 unless otherwise stated.)

BOSTON.—Supplies light, demand moderate, market steady. Sales by jobbers to grocers in small lots: Comb, New York and Vermont, mostly good quality, some light sections, best 33-37c per section, few light sections low as 30c per section; extracted and beeswax, no sales reported.

CHICAGO.—1 Colorado and approximately 100 packages by freight from Illinois arrived. Supplies liberal, demand and movement slow, market dull. Sales to jobbers: Extracted, Idahos, Colorados, and Californias, white sage and alfalfa 19-20c, amber sage and alfalfa 18-18½c per lb.; comb, 24-section cases, No. 1, $7.00-7.25. Beeswax, supplies moderate, demand and movement moderate, market steady. Sales to jobbers, per lb., Idahos, Colorados, and Californias, light 40-43c, dark 35-37½c.

CINCINNATI.—No arrivals, demand light, practically no movement, market dull. Sales to jobbers, no honey sales reported. Beeswax, demand limited, market steady. Sales to jobbers, average yellow 45-48c per lb.

CLEVELAND.—Demand and movement good, market steady. Sales to jobbers: Western, 60-lb. cans white clover 25-26c; light amber 22½c per lb.

DENVER.—Approximate receipts 29,000 lbs. extracted and 60 cases comb. Supplies moderate, demand and movement good, market steady. Sales to jobbers: Comb, 24-section cases, No. 1, $6.75, No. 2, $6.30. Extracted: White 18½-20c, light amber 17½-19c. Beeswax, 40c in cash, 42c in trade.

KANSAS CITY.—Approximately 100 cases arrived since last report. Demand and movement good ,market firm. Sales to jobbers: Comb, cases, Californias and Colorados, light alfalfa $7.50-8.00; flat cases Missouris, light $8.50-8.75. Extracted, Californias and Colorados, light amber mostly 23c per lb.

MINNEAPOLIS.—Supplies liberal. Demand good for extracted, demand slow for comb, market steady. Sales direct to retailers: Comb, Western, fancy light, 24-section cases $7.50; extracted, Westerns, 60-lb. cans 21c, few 22c per lb.

ST. PAUL.—Supplies liberal, demand and movement moderate, market steady. Sales direct to retailers: Comb, Western, fancy light, 24-section cases $7.25-7.50; extracted, too few sales to establish market.

PHILADELPHIA.—Practically no demand or movement, no sales reported.

ST. LOUIS.—Supplies moderate, demand and movement slow, market steady. Sales to jobbers: Extracted, per lb., Southern, amber in barrels 14-15c, in cans 15-16c; comb, practically no supplies on market, no sales reported. Beeswax, prime, per lb. 39c.

NEW YORK.—No arrivals reported. Supplies moderate, practically no demand, no sales reported.

EXPORT DISTRIBUTION OF HONEY, DEC. 15-31, 1919.

Total, 141,084 pounds; to Austria-Hungary, 12,000; to France, 13,589; to Germany, 55,456; to Netherlands, 26,200; to Switzerland, 23,996; to Canada, 6,798; China, 1,494; to all other countries, 1.551 pounds.

George Livingston.
Chief of Bureau.

Special Foreign Quotations.

LIVERPOOL.—We have very few transactions to record since our last report, owing to the dislocation caused by Christmas and New Year holidays and, of course, the usual stock-taking, during which period people are disinclined to offer honey.

Seeing the scarcity of sugar and its high prices, we look forward to a better demand for honey in the future. Chilian extracted honey is worth at the present rate of exchange about 16-17c per lb. A parcel of Cuban beeswax has been sold at about 29c per lb. Chilian would be worth 34-35c.

Liverpool, England, Jan. 23. Taylor & Son.

CUBA.—Extracted amber honey, in barrels, $1.15 per gallon. Clean average yellow beeswax, 38c per lb. A. Marzol.

Matanzas, Cuba, Feb. 8.

Quotations From Producers.

The following are the opinions and quotations of actual honey-producers thruout the country received during the last few days:

ARIZONA.—Wholesale price producers are receiving: Extracted, 18.00 per case of two five-gallon cans; comb, averages about 25c per lb. The demand is fair, but not as good as it should be, considering conditions.—W. I. Lively.

BRITISH COLUMBIA.—Wholesale price producers are receiving for extracted 30c, comb 32c. The demand for honey increases here at this time of year, owing, no doubt, to the supply of jams, canned fruits, etc., getting depleted. The average wholesale price for the 1919 crop of honey produced in British Columbia, 172 tons in all, was 29c a pound, the whole value amounting to $99,760.—W. J. Sheppard.

CALIFORNIA.—Wholesale price producers are receiving: Extracted, 19c, 17½, 15, and 16c; comb, $6.50, $5.00, and $5.50. The demand is fair. We need rain.—A. E. Lusher.

CALIFORNIA.—Wholesale price producers are receiving for extracted 14-18c; comb 25-30c. The demand is only fair.—L. L. Andrews.

COLORADO.—Some sales of extracted honey have been made around 16c. This could have been sold at a higher price only a short time before. I have heard of no large sales of comb honey. Stocks practically cleaned up. The demand is rather quiet.—J. A. Green.

FLORIDA.—Wholesale price producers are receiving for extracted is possibly 15c. No comb honey is produced. The demand is not very good.—Ward Lamkin.

FLORIDA.—Wholesale price producers are receiving: Extracted, $2.00-2.50 per gallon; comb, 25-30c, 8-12 oz. The demand is fairly good.—C. H. Clute.

IDAHO.—Wholesale price producers are receiving: Extracted, small lots 20c, carloads 18c; comb 10 oz. $6.00 per case, 11 oz. $6.25, 12½ oz. $6.50. The demand is not good, but some improvement.—E. F. Atwater.

ILLINOIS.—Wholesale price producers are receiving: Extracted 20c; comb 25c. The demand is fairly good.—A. L. Kildow.

KANSAS.—Wholesale price producers are receiving for extracted 20c; comb all sold. The demand is not good. Bees coming fine. All packed hives have commenced rearing brood. Maples are beginning to bloom.—A. D. Raffington.

INDIANA.—No extracted being sold at wholesale prices; retails at 35c in pails, 50c bottled. No comb at any price except what is brought in from outside; retails at 40c per comb.—E. S. Miller.

MARYLAND.—Wholesale price producers are receiving for extracted 22-24c; comb 28c. The demand is not so good as in sugar shortage.—S. J. Crocker.

MASSACHUSETTS.—No honey is in hands of producers for sale at wholesale, either extracted or comb. Demand is very light.—O. M. Smith.

MICHIGAN.—I do not know of any recent sales. The demand is not good.—B. F. Kindig.

MINNESOTA.—Wholesale price producers are receiving for extracted honey 18 to 19c in Minneapolis. Producers in country districts get 25 to 30c in local market. No Minnesota comb on market; Colorado to dealers $7.25 a case. The demand for extracted is fair, for comb poor.—Chas. Blaker.

MISSISSIPPI.—All of 1919 crop sold.—R. W. Harned.

MISSOURI.—Wholesale price producers are receiving for extracted 25c; comb $8.40-8.50 per case. Not very much demand—too high price.—J. W. Romberger.

MISSOURI.—No extracted honey selling. Comb, 30c for job lots, Nos. 1 and 2 mixed. The demand is good. European foul brood has played havoc with local production.—Louis Macey.

NEBRASKA.—Wholesale price producers are receiving for extracted 25c; comb 35-38c. The demand is fair, owing to sugar being limited.—F. J. Harris.

NEW JERSEY.—Supply exhausted.—E. G. Carr.

NEW YORK.—Wholesale price producers are receiving: Extracted, 20-21c No. 1 white, 16c amber; comb No. 1 white $7.00-7.20. The demand is good. Very little honey in the producer's hands. We are entirely closed out, and beekeepers are inquiring for honey to fill orders. Locally there is a great demand from consumers. Shortage of sugar helps this demand.—A. O. House.

NEW YORK.—Wholesale price producers are receiving for extracted clover 22-25c; buckwheat, 17-20c. All comb is out of producers' hands, as far as we know. The demand is not very good.—Adams & Myers.

NEW YORK.—No honey left in this county. The demand is not good. I have learned of a lot of six tons of white extracted in northern part of State being sold at 20c delivered.—F. W. Lesser.

OHIO.—Wholesale price producers are receiving for extracted 25c. No comb on market. The demand is very good.—Fred Leininger.

OKLAHOMA.—Extracted honey practically all sold. Comb honey retails for 40-50c per lb., mostly Colorado, Nos. 1 and 2, white. Extracted honey being shipped in, and the demand is only fair; retails for 35c per lb.—Charles F. Stiles.

ONTARIO.—The wholesale price producers are receiving for extracted and comb honey has not changed since report for February.—F. Eric Millen.

PENNSYLVANIA.—No extracted honey whatever in this part of the State, and the market is practically bare. Clover sells at $1.50 retail in 5-pound pails and buckwheat at $1.25. No comb on the market. The demand is good.—Harry Beaver.

TEXAS, LOWER RIO GRANDE VALLEY.—I know of no honey being sold wholesale in this locality. Local demand is very good. A. Lynn Stephenson.

EAST TEXAS.—Further quotations are useless, as there is no honey in the hands of producers.—T. A. Bowden.

TEXAS.—Wholesale price producers are receiving for extracted 25c but very little for sale. There is no comb honey for sale. The demand is good but no honey.—J. N. Mayes.

WASHINGTON.—Wholesale price producers are receiving for extracted 17-18c, comb $6.00 per case. The demand is not good.—Geo. W. B. Saxton.

WISCONSIN.—Wholesale price producers are receiving: Extracted 20-25c; comb 25-35c in very small lots.—H. F. Wilson.

Advertisements Received too Late to Classify.

Package bees. Italian queens.
E. A. Harris, Albany, Ala.

Annual White Sweet Clover seed, trial packets at $1.00 per packet, postpaid.
Henry Field Seed Co., Shenandoah, Iowa.

FOR SALE.—California Wonder Corn for seed. Doubles yield. Send for circular.
James McKee, Riverside, Calif.

FOR SALE.—Italian bees free from foul brood; also swarms in season. Inquire of
Jacob Long, Sr., Dayton, R. D. No. 1, Pa.

FOR SALE.—259 shallow extracting supers; 9 excluders. A bargain. Write
James McKee, Riverside, Calif.

FOR SALE.—Bright Italian queens, $1.50 each; $14.00 per doz. Ready after April 15.
T. J. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—5 barrels of about 400 lbs. each of dark honey just extracted. Suitable only for baking or feeding bees. Absolutely free from disease.
Ward Lamkin, Arcadia, Route A, Box No. 97, Fla.

FOR SALE. — Four six-frame Root automatic hand extractors for Langstroth frame. All in perfect condition. Reason for selling—am using eight-frame power extractor.
C. J. Baldridge, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Summer resort located on Bear Lake, one mile from Haugen, 1½ acres of land. Bees are a good side line. Have good business accommodations for 25 people. Reason for selling, have other business. John Kubes, Haugen, Wisc.

Italian queens, the kind that are sure to please you. Untested, in April, $1.25 each; one untested, May 1 to July 1, $1.00; one tested, May 1 to July 1, $1.50. Discount on large orders. Safe arrival guaranteed. L. R. Dockery, Carrizo Springs, Texas.

FOR SALE.—Used 5-gal. cans. Every one bright inside and washed outside. New corks. No leakers. Cases complete. Case of two, $1.00; 10 cases, $8.00. Carload if you wish. Will take honey, wax or cash.
Bruner, 3836 No. Kostner Ave., Chicago, Ills.

SOLD OUT.—Having sold out my bee and queen business will have no bees nor queens for sale this season.
G. W. Moon, 1904 Park Ave., Little Rock, Ark.

WANTED.—Around 75 colonies of bees, near S. Dak. Fred Day, Alcester, S. Dak.

WANTED.—5 to 100 colonies of bees.
T. Wanzke, 1233 Barry Ave., Chicago, Ills.

WANTED.—Six or eight-frame extractor in first-class condition. C. E. Martin, Minier, Ills.

WANTED.—Young man wishing to learn beekeeping, up-to-date methods. State age and habits.
Chas. Schilke, Matawan, R. D. No. 3, N. J.

WANTED.—Light second-hand power or hand saw rig. Full particulars, price first letter.
Jas. R. Conklin, Moravia, Box No. 14, N. Y.

WANTED.—Young man of good habits to work with bees for season 1920, large apiary. Terms and reference with first letter.
J. B. Merwin, Prattsville, N. Y.

WANTED.—Foundation machine, 10 or 12-inch rolls and one 4 or 8-frame extractor. Wilbrod Montpetit, St. Louis de Gonzague, Co. Beauh, Quebec, Can.

WANTED.—A position as assistant queen-breeder and handling bees. Has been my work for many years. South preferred. Address
R. Powell, 113 E. Genesee St., Syracuse, N. Y.

WANTED.—Man to tend about 300 swarms of bees, steady employment to the right party. State wages and experience in first letter.
M. S. Nordan, Mathews, Ala.

WANTED.—On mountain farm near Bluemont, Va., beekeeper who wants good location; house, garden, fuel, fruit, spring, use of horse and cow, in return for looking after the place.
J. A. Truesdell, 612 Riggs Bldg., Washington, D. C.

WANTED.—(Nearby, disease-free and in good condition) used 8 and 10-frame standard hives, also supers, excluders, and empty combs, wired. Could use few colonies healthy bees.
Lloyd W. Smith, Madison, N. J.

WANTED.—In April, one familiar with modern beekeeping practice to run small apiary (50 colonies) and help out with gardening, poultry, lawn, etc. Pleasant surroundings on modern 1,100-acre farm. Lloyd W. Smith, Madison, N. J.

QUEENS AND BEES

WHY ARE WE THE LARGEST BREEDERS OF ITALIAN QUEENS IN THE WORLD?

You can't buy superior stock at any price. Safe arrival and satisfaction in every respect guaranteed.

UNTESTED QUEENS

To June 15th		After June 15th	
1	$1.50	1	$1.25
12 or more	1.25	12 or more	1.00

TESTED QUEENS

To June 15th	$3.00	After June 15th	$2.00

BEES

1-pound packages	$3.00	2-pound packages	$5.50

NUCLEI

1-frame	$4.00	2-frame	$7.00	3-frame	$9.50

No queens included at above prices.

Nuclei are on good combs, full of brood with plenty of bees.

FULL COLONIES

We can furnish, and can ship on date specified, full colonies of bees in new hives, good comb, and good strong colonies with **Tested Queens:**

8-frame	$18.00	10-frame	$20.00

DR. MILLER'S QUEENS

Let's make this a Miller queen year. Dr. Miller has furnished us breeders from his apiaries, and we are the only ones that he furnishes breeders to. In these queens you get the fruits of the foremost beekeeper of the world. We pay Dr. Miller a Royalty on all queens sold.

To June 15th		After June 15th	
1	$2.00	1	$1.50
12 or more, each	1.60	12 or more, each	1.25

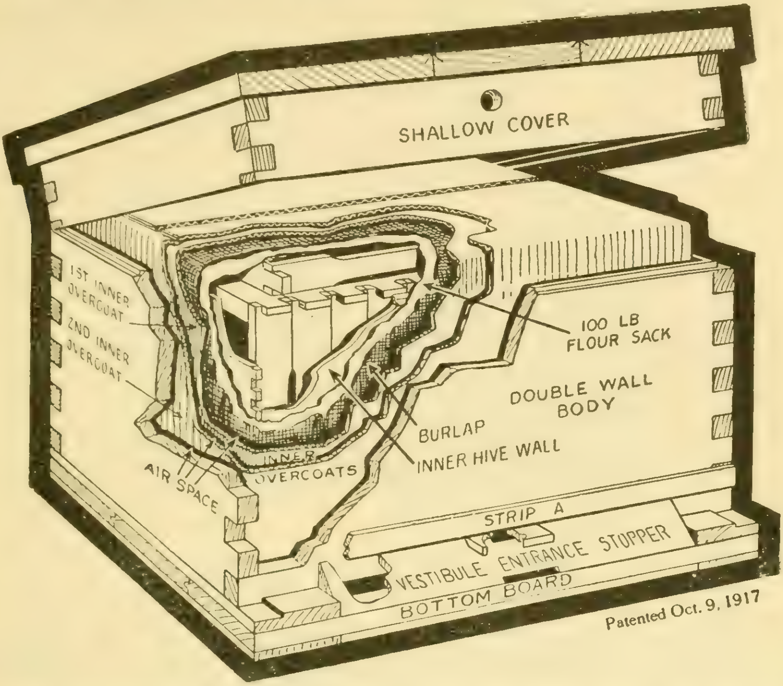
We carry a full line of Root's supplies, including the new Root-Weed foundation, Prompt Service.

THE STOVER APIARIES

Successors to
THE PENN COMPANY
Penn, Miss.

MAYHEW, MISS.

Winter Problem Solved by the Hive with an Inner Overcoat . . . .


SHALLOW COVER
1ST INNER OVERCOAT
2ND INNER OVERCOAT
100 LB FLOUR SACK
DOUBLE WALL BODY
BURLAP
INNER HIVE WALL
AIR SPACE
INNER OVERCOATS
STRIP A
VESTIBULE ENTRANCE STOPPER
BOTTOM BOARD
Patented Oct. 9, 1917

NOW FURNISHED WITH JUMBO DEPTH OR STANDARD HOFFMAN FRAMES.

Do you know that E. D. Townsend & Son, two of Michigan's most extensive beekeepers, with their 1,100 colonies of bees, have three yards of Government tenement winter cases that they have discarded? One beekeeper speaks of these tenement winter cases, recommended by the Government, as ice boxes. With their thick walls, they are slow to warm up during an occasional warm day thruout the winter. There are occasions when one cleansing flight will result in successful wintering. Protection Hives with the Inner Overcoat will have bees bright and lively at the entrances during clear but cool days, when not a bee will be in sight at the entrances of other hives and styles of winter packing. Think of the saving in expense for cases, time and labor in packing and unpacking, and the simplicity of putting your bees safely into winter quarters with the Protection Hive as compared with the tenement winter case. With this hive you have an efficient, compact, substantial equipment without the litter of packing materials and the inconvenience of having them around. Send for special circular and 1920 catalog.

TIN HONEY PACKAGES.

2 lb. Friction top cans, cases of 24
2 lb. Friction top cans, crates of 612
2½ lb. Friction top cans, cases of 24
2½ lb. Friction top cans, crates of 450
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 203
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 113

Special Prices.

Crates of 100 five-pound pails......	$ 8.00
Crates of 200 five-pound pails......	15.00
Crates of 100 ten-pound pails......	12.50
Sixty-pound cans, two in a case, per case	1.30

Shipments made from Michigan, Ohio, Illinois and Maryland factories.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

We Want Beeswax

The tremendous demand for Dadant's Foundation requires that we have a large stock of beeswax on hand and in transit at all times.

We are therefore situated so that we can pay the highest prices, both in cash and in exchange for bee supplies.

Write us stating quantity and quality of beeswax you have to offer and we will give you our very best prices either f. o. b. Hamilton or your shipping point together with shipping tags and instructions.

When ordering your stock of bee supplies for your season's use, be sure to stipulate

DADANT'S FOUNDATION

Every inch, every pound, every ton, equal to any sample we ever sent out. You cannot afford not to use Dadant's Foundation.

We render combs into beeswax.

We work beeswax into Dadant's Foundation.

We buy beeswax for highest cash and trade prices.

We sell a full line of best bee supplies.

PRICES AND CATALOG FOR THE ASKING

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE EDITORIAL

MARCH, 1920

Honey Prospects for 1920.

THE PROSPECTS for clover in the Eastern States are the best they have been for years. In many of the clover districts the soil was matted with the white and alsike clover last fall. Heavy snows during this winter have kept this growth of clover well protected; and as they melt away the soil will be well watered. That nothing but early drouth in the spring will be able to shut off a heavy clover flow is the prediction of most beekeepers for the coming spring. Conditions in California have greatly improved with a heavy rainfall that came on Feb. 8. The orange crop will be about normal, because the orange groves are irrigated.

The western alfalfa crop will be about normal. There is nothing more stable than alfalfa honey. We can always depend on it year in and year out. Unfortunately, we can not say this of eastern clover nor of California sage; but the prospects for a large yield of clover will more than offset the shortage of sage, whatever that may be.

* * *

Southern Beekeepers, Take Notice.

WE ARE REQUESTED to call the attention of the beekeepers of Alabama and several other Southern States, which do not provide for apiary inspection, to the new Wisconsin law which went into effect last July. Under this statute beekeepers and transportation companies are prohibited from accepting for delivery in Wisconsin any bees, comb, or used beekeeping appliances without a permit from the Wisconsin inspector of apiaries, or an inspection certificate from an official inspector of the State of origin attached to each package, crate, or bundle containing the same.

It appears to be customary for the Alabama dealers, at least, to attach affidavits to their pound packages, stating that the honey used in making the candy has been diluted and boiled. Experience has shown that the ordinary boiling is insufficient to sterilize honey and that foul brood sometimes develops as a result of the introduction of bees in pound packages, unless they come from an apiary free from disease.

It is now too late, of course, to provide for inspection in a State in which no arrangements of that kind have been made. Consequently, it will be necessary for all dealers who are unable to furnish an inspection certificate to secure a permit from the State Entomologist of Wisconsin for this purpose. A copy of this permit may then be attached to each pound package, and a list of all the customers of the permittee filed with the State Entomologist. It is understood that where bee diseases are apparently introduced in pound packages, permits will probably be refused in future years to the apiaries from which the bees were received. All shipments should also be accompanied by the affidavit form now used. Applications for the needed permits are to be made to S. B. Fracker, Acting State Entomologist, Madison, Wis.

* * *

Sugar for Next Fall's Feeding.

IN OUR ISSUE for July, 1919, we stated that there was going to be a great shortage of sugar, and urged beekeepers, ere it was too late, to lay in a supply for fall feeding to prevent starvation. This statement was made after talking with one of the leading officials of the so-called Sugar Trust on the Pacific Coast, who said that there would be a million-ton shortage, and there was. We also added in our issue for November, page 705, that, while the shortage was very acute, plenty of beet sugar would be available in the early months of the year, and that was true likewise. Again we have the ''hunch'' that there will be another shortage next year. It seems a little early to order sugar now, especially when it is so hard to get; but the beekeepers had better be watching their chances, and some time during this spring and summer lay in a supply—especially those who live in a locality where there is no fall flow, and who, year in and year out, have to feed in order to insure safe wintering and springing. A word to the wise will be sufficient.

* * *

Our Advertising Guarantee.

IN THE FEBRUARY NUMBER of Gleanings we said: ''In the next issue of this journal we shall announce an advertising guarantee against deliberate swindlers, such as the 'Pelican Apiary,' and state the terms of such guarantee.''

Here is our guarantee and its terms:

> We believe that all the advertisers in this journal are trustworthy. We will make good to paid subscribers the loss of any money sent to any deliberate swindler or irresponsible advertiser by reason of any misleading advertisement that may get into our columns. We protect our subscribers against swindlers but will not be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of any complaint against an advertiser must be sent to us within one month of the time of the transaction. In writing to our advertisers, mention seeing their advertisement in Gleanings in Bee Culture, in order that you may secure the benefit

of this guarantee in case you may later wish to avail yourself of it, as we require proof in case of trouble as to where you may have seen the advertisement in question. Differences or mistakes that may occur between our subscribers and honest advertisers should not be confused with dishonest transactions. We can not guarantee advertisers more than one month after the last appearance of their advertisements in our columns; but the names of regular advertisers who discontinue their advertisements and who are in good standing at the time, will be published in the first number of Gleanings after discontinuance, under a headline reading "Discontinued in Good Standing," which list will always be found at the head of our Classified Advertisements department. This will not be done (for it is not necessary) in case of temporary advertisers for "help wanted," "positions wanted," advertisers of single sales of small or secondhand articles, in which transactions the terms of bargain and payment are special, for in such cases the purchaser can, by taking care, guard his own interests. We will promptly discontinue the advertisement of any advertiser against whom a clearly valid complaint may be lodged by a subscriber, and such advertiser will not be restored (if at all) to our columns until he has satisfied such complaint. Our subscribers will be solely responsible for the terms they make with advertisers, and must use all reasonable diligence and caution in making such terms and in satisfying themselves of the condition and quality of any special article or commodity offered for sale.

We hope that the above guarantee does not need much elucidation nor comment. If it did, it would not be the right sort. A guarantee needs to be perfectly understandable by all parties concerned. We have tried to make this guarantee such. We have tried to bound it north, east, west, and south by plain words. What it guarantees, is set forth. What is not set forth in it, is not guaranteed by it.

We will live up to it. We ask both our subscribers and advertisers to help us do this.

A Rank Injustice to Beekeeping.

WE HAVE RECENTLY received from several beekeepers confirmation of the report that the 1920 U. S. Census is going to be pitifully inaccurate in its returns as to beekeepers and beekeeping. This is because of the fact that only the regular farm schedule provides for the listing of bees and beekeeping statistics.

Let us quote from the letter of a beekeeper living in a small village in southern Ohio, who writes:

> I have just had a visit from the census taker, and I was surprised when I was unable to list my 15 stands of bees, as the only schedule that had a place for the bees was the regular farm schedule. The census taker informed me that he listed as farms only lands producing more than $250 worth per year. There will not be more than one-eighth of the bees in my township listed. Looks as if the bee associations should look after the interests of the business, and see that there is a fair census return of the business.

As the census is now being taken, thousands and thousands of beekeepers and their colonies of bees will not be reported. Very many of the small beekeepers (and possibly all the migratory beekeepers) will be entirely ignored, and the importance of the business, not only in the eyes of the general public but of the U. S. Department of Agriculture and the U. S. Congress, greatly weakened. This is a serious consideration when it comes to securing state and national aid for beekeepers. Government officials, state and national, when making appropriations, go to the U. S. Census for their information as to the importance of a business and the number that may be benefited by governmental action.

The census of 1910 was extremely faulty in that no account of bees in cities and towns, and no record of bees and specialist beekeepers up in the mountains and on waste lands was taken. The farmer beekeepers of the country by no means represent the industry of beekeeping in the United States. At several large beekeepers' conventions held since 1910, every beekeeper present in such conventions has reported that none of his bees were reported in the census-taking. Now, it seems, the census farce of 1910 regarding bees and beekeeping is being repeated.

Why was this injustice to the beekeeper and the beekeeping business permitted in the present taking of the Census?

Beekeepers' Short Course at Columbus, O.

THE OHIO STATE Beekeepers' Association and the Extension Department of the Ohio State University at Columbus, O., held there a very successful short course in beekeeping the last week in January. The principal speakers were Dr. E. F. Phillips and Geo. F. Demuth, of the Bureau of Entomology, Washington, D. C. There were other speakers, such as B. F. Kindig, State Apiarist, and David Running, the bee-cellar expert of Michigan; F. W. Leininger, Delphos, O., a big beekeeper and queen-breeder; Dr. Ernest Kohn, President of the Association; E. C. Cotton, State Foul-brood Inspector, and E. R. Root. Secretary J. S Hine, one of the University professors who was present at all the meetings, did much to look after the comfort of the beekeepers. Mr. Moore, Vice-president of the Ohio State Beekeepers' Association and a reporter on the Ohio State Journal, is the man who advertised and got the beekeepers of the State together. It is worth much to have a newspaper reporter who can give the correct dope to the papers. Mr. Moore certainly did this, as the Journal was full of the proceedings of the great meeting.

The attendance was the largest and most enthusiastic of any bee meets ever held in Ohio. There were not only many backlotters but practically all of the large producers of the State. The latter especially acknowledged their indebtedness to Dr.

Phillips and Mr. Demuth for the many helpful tricks of the trade they had received.

Dr. Phillips and his corps of assistants have done a world of good all over the United States in propagating not only practical but scientific information on how to keep bees better. There is scarcely a large beekeeper today who having heard them does not acknowledge that these lectures have set them right on many of the problems that once seemed obscure and difficult.

The question of cellar temperature, as referred to elsewhere, has cleared up not only the atmosphere in a bee-cellar, but in a wider sense the whole atmosphere on the general subject of beekeeping. As Dr. Phillips and his associates have pointed out, the vital thing in beekeeping is good wintering. Good wintering means good colonies that are ready for the adverse weather conditions in the spring, and which will later be ready to harvest the crop.

At this particular meeting, President Kohn was at his very best. He seldom rose to his feet to introduce a speaker without raising a ripple of laughter thruout the convention hall. He was a good presiding officer, and he helped to make it possible for the large attendance to give the closest attention for three or four hours in the morning and for a like period in the afternoon.

The New and the Old National.

SINCE THE MEETING at Kansas City, organizing the new American Honey Producers' League, details of which were given on page 105 of the February Gleanings, we have received various comments, which, on account of just going to press, we are unable to give in this issue. Some of the writers are very much pleased, and feel that the movement heralds a new era in organized beekeeping, that will mean not only a nation-wide concerted action on the part of those interested but a stabilizing of prices at a time when the honey market may tip downward during the process of the world's reconstruction.

Briefly, here are the criticisms that have come to us. One is that the old "National" name that has stood so long should not be changed. Some years ago Dr. C. C. Miller said, when the subject of reorganization was up for consideration, "Whatever you do, do not change the name." Another criticism or protest comes from the East. In fact, we have a letter from a correspondent who says, after speaking of the repeated failures of the National to reorganize on co-operative lines, "Why should I, as an Eastern beekeeper, belong to a society that aims to sell Western honey at a better price? * * * It is absurd on the face of things to expect me to join an association which will help chiefly the Western beekeeper. * * * Years ago the National tried to get lower freight rates on Western honey. I thought this a worthy move; but I recall that a lot of the beekeepers in the East withdrew from the National because the Association was hurting them." Further on he asks if there is anything in common between the Eastern beekeeper and the Western, and then inquires whether, if the new league is organized on the line proposed, the Eastern markets would not be flooded with Western honey more than they now are.

Another criticism comes from a man who has had a large experience in organizing exchanges that are a marked success. He says that **local** co-operative exchanges are perfectly feasible and practicable, but that one organized on a **national** basis can not succeed.

Still another view is that the purpose of the new league would be in contravention of the Sherman anti-trust law, and thus be illegal; but "one who was there" says that a good lawyer said it is legal. This point should be determined beyond any question or doubt.

Still another holds that the new league will have difficulty in getting financial support to put it thru, adding that it will take from $50,000 to $100,000 to make even a start. Time will tell.

As to any or all of these allegations, Gleanings disclaims any thought or intention of throwing cold water on the new move, but feels that some of these statements should have careful consideration. Our columns are open for a full and candid discussion. To the criticism that the new National should not change its name, one "who was there" told the editor that it was decided to get out a wholly new charter under a new name and thus avoid any legal or other complications that might arise from the use of the old name. Further, he said there is a prejudice against the old National that would be difficult to remove. That the old National has tried several times to reorganize, and fell down, no one who knows anything about the situation will deny. But that does not necessarily mean that all efforts in the future will fail.

Gleanings will welcome any plan that will help to stabilize the honey market at a fair price; and that is, we understand, the main purpose of the new league. Fine! but let there be no mistake made in launching the new organization. We say this with a sincere desire to help, not to pull down.

In our last issue, in referring to the new league editorially we stated that its general plan "looked good," but added, "This organization, good as it is, can not succeed unless beekeepers get back of it in a substantial way with their dollars and their moral support." That is the crux of the whole situation.

The suggestion has been made that the several co-operative organizations in the West could combine under one general head; that is, one manager could act for all the exchanges and co-operative bodies now in existence. Perhaps this is the plan.

VALUE OF PACKAGE BEES

A Means for Quick Re-stocking. Some Things Bee-breeders Should Do. A Test of Twenty-five Packages

By H. F. Wilson

PACKAGE bees may not be one of the wonderful advances in beekeeping, but I believe that they are to play a very large part in the future development of the industry. Many successes have been recorded, but only a few of the many failures are reported. I believe package bees have passed the experimental stage, and that the business will continue to increase for a time. It seems quite likely, however, that there will be a slump sometime in the future, for the simple reason that the present increased interest in beekeeping will fall off, to a more or less extent, when conditions again become normal. At the present time hundreds of people are going into the business who will not follow it up when they begin to meet with the difficulties which must come to the inexperienced. I do not mean to say that beekeeping is not going to continue growing, for I am sure it will, and it is bound to become a more popular business every year. However, there are a lot of mushrooms being started right now that are going to turn to puff balls, and loud will be the report when they burst.

Package bees are in great demand at present, because it is almost impossible to buy bees in small colony lots, and comparatively few large bee-yards are changing hands. At least, this is true in Wisconsin. They are also in demand because many beekeepers are making a new start or are increasing their holdings and cannot buy the bees in colonies. It is also a desirable way to secure bees, with a reasonable degree of certainty that no disease will accompany them.

At $10 or even $15 a colony, I believe it is cheaper to buy bees by the colony than by the package, provided the colonies are strong and in good standard hives. It is to be presumed also that the colonies will be free from disease.

A three-pound package of bees plus hive and frames with foundation will easily cost ten dollars. A colony of the same strength, with a good young queen started May first, will produce double the crop of that secured from a three-pound package on sheets of foundation.

Many of our beekeepers have also met with disastrous adventures in buying package bees, because they did not get the bees at the promised time in the spring. One beekeeper in our own State made a deal for a large number of packages, and, while his order called for early spring delivery, he was still receiving a part of his shipment in August. It would be well for bee-breeders to take note of this and put their house in order, for nothing will harm the package business more than late deliveries. I do not wish to discredit any breeders; but I do think the buyer has been getting a bad deal in many cases, especially when he has to put up the money in advance and does not get his order filled until midsummer. Surely this money could be handled thru our banking system so that the breeder will be guar-

Wilson and Fracker's 20 colonies started from two-pound packages.

anteed against loss, and the buyer will be protected in his part of the contract.

We ourselves have been dealing with a breeder, who, I believe, is doing business in a fair way. He requires only 10 per cent of the order down, with the remainder to be paid at time of delivery. This firm, furthermore, guarantees delivery and a refund when deliveries are late. Sooner or later all breeders will be compelled to follow a similar plan or do less business.

Package bees appeal to me as a means of quick restocking in sections where the number of colonies has decreased as they have in Wisconsin. There is a big demand in Wisconsin with very few colonies for sale. For the next few years, then, we must depend on package bees to fill the gaps. Some one has remarked that restocking can easily be done thru increase. Yes, but every colony of bees is being used to gather honey, and very few beekeepers want to split even a few of their colonies. It also happens for one reason or another that some beekeeper will lose 50 to 75 per cent of his yard by bad winter stores. Several thousand colonies were lost during the winter of 1918-1919 from this cause, and at least two beekeepers with over 150 colonies each are going to lose all of their bees this winter. With the present price of honey these men cannot afford to wait four or five years to restock their yards by ordinary methods of increase, and package bees are a proper investment. The average crop secured by one of these men and sold at 20 cents per pound will more than pay for the required number of packages next season.

We are continually asked for information on the value of package bees; so we determined to run a test on 25 colonies. We started in by buying a complete equipment of hives, frames, foundation, etc., for 30 colonies. An order was placed with one of our Southern breeders for 25 two-pound packages with queens, and a request made that the bees reach Madison promptly on May 1, if possible. Twelve of the packages were ordered shipped by parcel post and thirteen by express.

The parcel-post shipment arrived in splendid condition on May 1 and on May 2 were put in hives with full sheets of foundation. (The feed in this set of cages was soft candy.)

The express shipment arrived May 7, and the bees were at once put in hives with foundation. This lot arrived in poor condition, and in six packages at least half the bees were dead. (Liquid feed only accompanied the bees.) Sugar syrup made of equal parts of water and sugar was given each colony with Alexander feeders. A total of 100 pounds of sugar was used for the entire 25 colonies. Every colony of the first shipment produced a surplus, and two of them produced three full supers of honey or slightly better than 150 pounds per colony. Of this lot five swarmed in June.

As was to be expected the second lot made a very poor showing, seven of the colonies making no surplus. The others varied from a few pounds up to 150 pounds, the surplus produced by one single colony in this lot. No other colony of this lot reached more than 75 pounds surplus (estimated). In addition to our other troubles, six of these colonies contracted American foul brood by July 1 and had to be treated. One hundred extracting combs were bought and used but too late to be of much help.

Perhaps this test is an average one, for we had our share of trials and tribulations, all of which cannot be recorded here. Even had it been worse, the investment would have been profitable. It could have been better, and under other circumstances the surplus should not have been less than 2,000 pounds.

The location of the yard was in the edge of town, but the bees had to fly across a lake so that the nearest large supply of nectar was not less than one and one-half miles. The total cost and proceeds of the venture are given so that the reader may form his own opinion of the experiment.

ACCOUNT OF H. F. WILSON & S. B. FRACKER, BEE-YARD, 1919.

Expenses.

May 1	10 hives complete without foundation	$ 20.00
	40 pounds of foundation, 300 sheets	30.00
	Supplies (hives, supers, wax etc.)	165.07
	25 2-pound packages of bees	143.06
	1 sack sugar for feeding bees	10.80
May 7	1 telegram for queens	.90
June 25	Telephone call	.45
July 2	96 combs	24.96
July 7	Wedges	4.02
	Express on combs	1.52
	Can for uncapping-knife	.90
	Funnel	1.00
Aug. 15	1 dozen honey cans	9.40
	Freight on cans	.52
	½ bundle of laths	.25
	2 yards of cheese-cloth	.50
Aug. 17	2 yards of cheese-cloth (fine)	.60
Sept. 26	Freight on supplies	2.76
Oct. 1	Drayage	1.00
	2 sacks of sugar at $11.00	22.00
	Total cost of apiary to date	$439.71

Receipts.

Honey taken from hives	1,066 pounds
Money received to date for honey sold	$235.39
Honey on hand	190 pounds

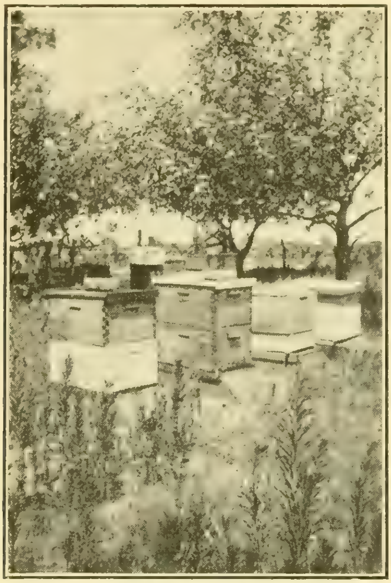
Madison, Wis.

The Two-pound Package.

From communications I have received since making public, in a previous issue of this journal, my experience with "package bees," it is evident that the subject is still being carefully studied, and many are contemplating a first venture.

The questions of prime import with these people are mainly these: When and from whom to order, what price one should be willing to pay, and what should be the manner of handling.

At the Illinois State Beekeepers' meeting last winter President Dr. A. C. Baxter stated: "In 1918 it was impossible to buy any packages. I tried and could not find any beekeeper in the United States that could sell me bees in two-pound packages.'' No doubt many would-be purchasers will fail in 1920 for the same reason that Dr. Baxter failed in 1918. He did not start soon enough. I bought 54 two-pound packages in 1918 for myself and a neighbor, and the only reason I could not buy more was shortage of the wherewithal at this end of the line. But I placed the orders early in February, and this year I got into action about the first of January. The breeders are booking orders from about the first of December, and when they have booked all they can fill they naturally have to turn down the late comers. So, if you want any bees from the South this spring, you cannot get your order in too quickly.



A few colonies made from two-pound packages that averaged 60 pounds of surplus without the addition of brood to aid them in building up.

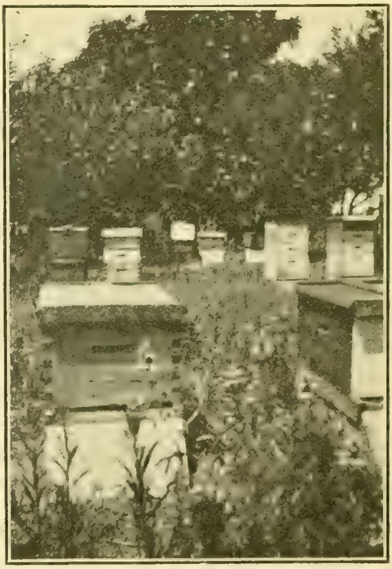
Even if I were allowed to do so, it would not be fair to many reliable advertisers, with whom I have had no dealings, to suggest responsible parties from whom you might order. However, I know from experience that it does not pay to buy from the man who advertises the lowest prices. Deal with a man who has been in the business for a number of years and who has a reputation to sustain, and you are likely to be well served and satisfied in the end. Have your order booked for delivery at a specified time, and if the order is placed early you may reasonably expect to get the bees near the time mentioned. Do not be afraid to have them come early. They will stand the trip better in cool weather than in warm. Last spring my bees arrived the eighteenth of April. The order was booked for the tenth; but bad weather often gets the shipper a little behind, and no beeman should complain of service as prompt as this.

Don't expect to buy bees at 1918 prices. My two-pound packages with queens cost me $5.75 by parcel post last spring. I expect to pay $7.00 this year, and do not consider them beyond the probability of a good investment at that.

As to manner of handling, have your hives in position before the bees arrive. I prefer to have two combs each about half-full of honey for each hive. Paint or sprinkle the screen of the cage with syrup. Open the cage and take out the little cage containing the queen. She should have been clipped by the shipper; if not, clip her and put her on a frame of honey with a few bees in attendance. If the weather is warm, shake the rest of the bees at the entrance and lay the cage, with the few adhering bees, against the front of the hive with its opening near the entrance. The bees will do the rest.

If the weather is cold place the cage in a vacancy made by removing frames of foundation from the hive, with the opening of the cage up in such a position that the bees can crawl directly on to the frame containing the honey and the queen. When the bees have all left the cage (which they will usually do overnight), contract the brood-chamber to three frames, by using a close-fitting division-board, and enlarge the brood-chamber gradually as the weather warms up and the bees require more room.

In 1917 I helped a neighbor hive 30 two-pound packages on foundation alone, and, altho the bees arrived in a snow storm and neither of us had had any experience with package bees, we got them in the hives and fed them syrup till sufficient nectar was



Showing a corner of Mr. Banta's apiary with wind break in the rear, to the north.

coming in to make feeding unnecessary. These bees furnished about 50 pounds of surplus per colony.

We gave the feed in a shallow pan on top of the frames. An extra ⅝-inch strip was nailed all around on the inner cover, raising it just a bee-space above the pan. Enough coarse dry grass was placed in the pan to prevent the bees from drowning and the feed given every day or about as fast as the bees would take it. Around the pan were placed little blocks of wood for the bees to crawl up on. This arrangement kept the heat down close to the cluster and seemed better than feeding in an empty super.

As to whether or not it pays to give brood to these bees at the time of hiving, there is much to be considered. If the package contains much less than two pounds of live bees(which will be the case if they do not come thru in good condition), a frame of sealed and hatching brood will be a great help and, in some cases, an absolute necessity; but great care should be exercised in handling brood in early spring. Choose a warm day and the warm part of the day. It is not required, in case the weather is unfavorable, that the brood be given directly when the bees are hived, but it may be given on the first pleasant day. A full two pounds of hardy young bees invariably does well for me without being helped in this way. If started early and they have a good queen, there will be a large force of young bees in the colony ready for the clover flow, and in this locality we get a very little surplus before that. R. R. Banta.

Oquawka, Ill.

A NEW HONEY-EXTRACTOR

The History of the Development of the Honey-extractor Having Centrally Pivoted Pockets

By H. H. Root

NOW that extracted honey is more than ever to the front, perhaps a brief history of the development of a new extractor, that can be reversed repeatedly at full speed, may be of general interest. Strange as it may seem, the idea of such an extractor having the principle of a centrally pivoted comb-pocket—that is, one reversing on an axis running thru the center of it—is just as old as if not older than the side-pivoted or hinged pocket of the machines generally in use. The use of the central-axis principle of reversing, theoretically, would be much easier on the combs, and in practice it is. R. F. Holtermann of Ontario, after trying out this principle in the Markle machine (mentioned further on), speaks very emphatically on this point. It does faster work, and is far easier on the combs, he says. A history of some of the early inventions leading up to the perfected machine, shown in Figs. 2 and 3, will not come amiss.

The first patent covering the centrally pivoted reversing idea was by J. K. Rudyard, as early as Aug. 22, 1882. This was a scheme for reversing thru a series of gears, and is quite similar to some late inventions supposed to be new. A later patent covering the same principle, reversing by a series of gears, was issued to A. J. Lawson, July 14, 1891. See Fig. 1, which is a photograph of the original machine. On March 28, 1893, a patent was granted to O. M. Hill covering the center-axis reversing-pocket extractor, the means for reversing being accomplished thru the use of ropes and pulleys instead of gears. This extractor is likewise very much like some other later inventions supposed to be new. On Nov. 22, 1892, a patent was issued to C. W. Metcalf, covering the use of chain and sprockets for reversing.

It will be noticed from the dates given thus far that all the patents have expired, and for the last 10 or 20 years the basic principle of a center-axis reversing-sprocket extractor has been free to the public.

Why did not this idea come into use? Simply because there were mechanical difficulties, some of which we shall point out.

In later years, T. W. Livingston, evidently without the knowledge of the patents just cited, illustrated and described this same principle for reversing. See the American Bee Journal for 1909, page 96. He says he has used this ever since. Cuts of this extractor are again shown in the December issue of the same journal for 1919, page 418. Mr. Livingston overcame one of the mechanical difficulties of preventing the pockets from flying out, but at too great a cost—a cost in a commercial way that would be prohibitive.

Some five or six years ago the Weaver brothers of Kentucky built in our machine shop a centrally pivoted reversing extractor, but employed the scheme of tilting pockets for the purpose of removing the combs. This machine, while not mechanically perfect, demonstrated to us at the time, beyond any question, that the plan of a central-axis reversing-pocket extractor was correct. Ever since that, we became convinced that this was the coming way to reverse combs, for large power-driven extractors at least; but we did not exactly like the tilting pockets, because this feature introduced another moving part.

Some three years ago G. W. Markle of

Ontario exhibited a centrally pivoted pocket-reversing machine at the Toronto convention. It created a large amount of favorable comment at that meeting. It was very similar to the one patented by J. K. Rudyard in 1882, in that there was no support or bearing at the top of each pocket, but one long heavy bearing at the bottom. This made it possible to remove the combs. We considered the Markle idea, but finally abandoned it because we figured that it would not be possible, in a commercial way, to make a bottom bearing and pocket on top rigid enough, without support, to stand the terrific centrifugal strain unless the parts were made very heavy. Here, again, expense and weight would be a serious drawback.

On Nov. 6, 1917, W. W. Somerford secured a patent on the scheme for using extractor-pockets in pairs, each pair reversing automatically in opposite directions around a shaft or axis in between each pair of pockets. While this made the pockets accessible, yet it called for **continuous automatic** reversing, which we consider a mistake, as will be explained later.

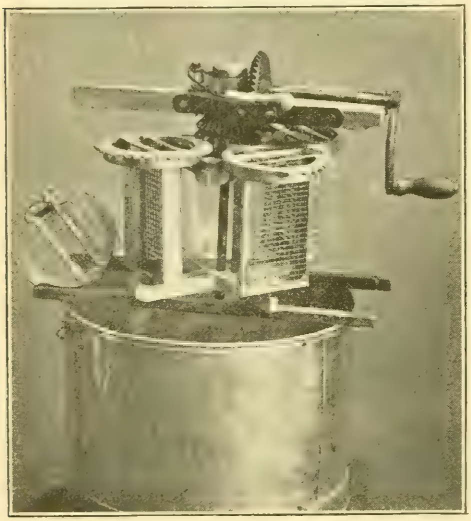


Fig. 1.—One of the first central-axis reversing comb-pocket extractors that was ever made. It was patented by Allen G. Lawson in 1891. The photograph from which this is made was taken from the original machine. If Mr. Lawson had gone a little further, he would have made a perfect working machine nearly 30 years ago.

From the foregoing citations it will also be seen that there are numerous applications of the general principle of pockets reversing on an axis running thru their centers rather than from one side. What are some of these applications?

First, there is the principle of **continuous** reversing in which the combs, in addition to traveling around a circumference of an extractor-reel, also turn on their own axes continuously on a line running lengthwise thru the center of the combs. This is a simple application; but after many tests we have found that it takes longer to extract honey in this way, and is very much harder on the combs.

Second, there is the principle of having **automatic** and **periodic** reversing—so many revolutions of the reel, then reversing without the attention of the operator. This is an improvement over the **continuous** reversing principle; but it is faulty in that the age of the combs and the temperature and the thickness of the honey alter the requirements.

Third, there is the principle of reversing the combs at full speed or slow speed **at the will of the operator.** When, in his judgment, the combs or the thickness of the honey will permit, he touches a lever, when, almost instantly, the combs are reversed. This, in our judgment, is the **only correct principle.** At any time the operator can reverse continuously at full speed, if he so desires, by holding the reversing lever. We will refer to this further on.

The greatest mechanical difficulty, and one which all the inventors have tried to overcome in an extractor where the individual pockets reverse on a vertical axis running down thru their centers rather than on their sides, is the one of getting the **combs in and out of the pockets** and **yet have the mechanism strong enough** to stand the terrific centrifugal strain. To put a pivot at the top and bottom of the pocket would make it clearly impossible to get the combs in or to get them out unless the Weaver plan is used, and this is objectionable. If the top pivot be left out, as it must be, then some scheme must be devised to hold the tops of the pockets from flying out by centrifugal force against the sides of the can. Until the experiment is tried, one can scarcely realize what a powerful force this is. Several have tried to make a large journal at the bottom of each pocket, bracing the pocket from the bottom as in the Markle machine. Our experience and observation convinced us that this is a faulty construction. The only alternative is to put a disc or wheel at the top of each pocket and then hold all these wheels from flying outward by individual chains, or, better, by a strong flexible steel band around **all** of them. This latter is the plan we adopted.

After studying all of these ideas, and seeing in actual operation some of them, I hit upon the particular combination of a specially constructed pocket, chain, and sprockets. With the help and good suggestions of George L. Howk, the man who has built and designed nearly all of the automatic machines in the Root factory, a four-frame extractor was built on the new principle. While this was a hand extractor, considerable honey was extracted—enough to show that the principle was right, and to warrant the building of a larger machine.

After a vast amount of building and re-building, altering this and that, an eight-frame machine was finally constructed. With this we extracted quite a good deal of honey here in Medina; then sent it to L. S. Griggs of Flint, Mich., one of the largest producers of honey in that State. Mr. Griggs' crop was not quite up to the normal, but he used the machine the entire season and enough to demonstrate that it was a great success. It was then brought back to Medina, when some further minor changes were made.

Removable Pockets.

One feature suggested by Mr. Howk, and a very valuable one, we believe, is that any of the pockets may be lifted out instantly for cleaning or sterilizing, just as easily as a comb may be lifted out. This feature will certainly be of practical value, for it will then be a simple matter to sterilize thoroly every part of the extractor with which the combs can come in contact. We do not believe it is possible to sterilize extractor pockets thoroly by pouring boiling water over them while they are in the extractor.

A recent improvement is in the matter of the screen. In the new extractor the screen is not a part of the pocket, but is a separate "cage," so to speak, by itself, just large enough for the comb to slip down into it. We have found that this tends to reduce breakage of new fragile combs to a minimum.

The very fact that reversing at full speed is possible and that reversing on a center axis is easier on the combs, does not prevent a careless operator from yielding to temptation and extracting the quickest way. When the combs are new and fragile, especially when they are extracted for the first time, and when the honey is very thick, we have found that it is not advisable to reverse repeatedly at full speed; for, while there is no chance of banging the combs, it is a fact that at very high speed, especially when there is some honey on the side of the comb nearest the extractor, the outside cells will be pressed into the screen in such a way that reversing under full speed, thereby suddenly transferring the strain from one side of the comb to the other (which amounts to pulling it off suddenly from one screen and pushing it on to the other) may crack the

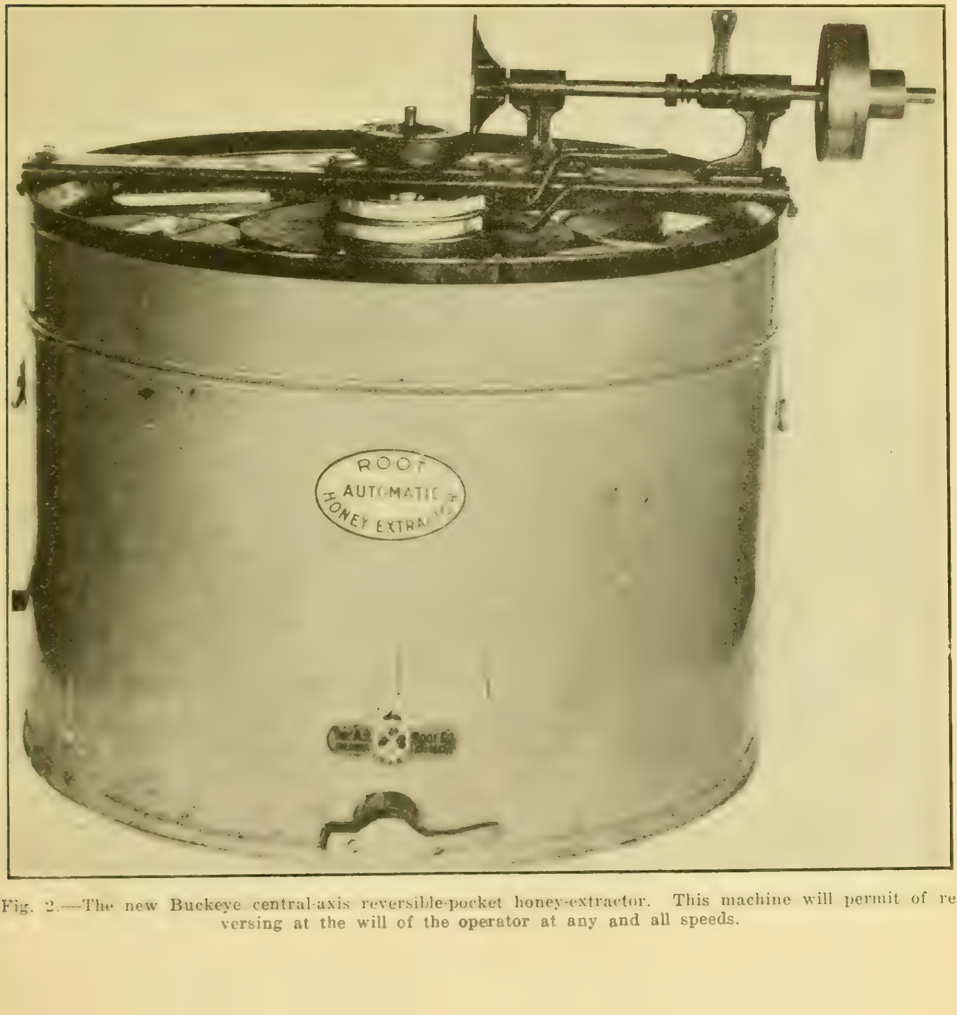


Fig. 2.—The new Buckeye central-axis reversible-pocket honey-extractor. This machine will permit of reversing at the will of the operator at any and all speeds.

combs, or, if there is any considerable amount of honey in the cells, tear the combs out of the frames altogether.

The great value of the new construction for an extracted-honey producer is that, when the conditions are right—that is, when the combs are not too new—it is possible and entirely practicable to reverse at full speed at a mere touch of the lever with less breakage of combs. Continuous automatic reversing, keeping the combs reversing all the time, is a serious mistake, as any one will find who tries. Intermittent reversing at the will of the operator, as we do it, is a success.

To reduce the danger on new fragile combs, why not reduce the proportionate speed of the reversing mechanism? In other words, why not reverse slower, even tho it takes a longer time? Simply because, if the reversing is done at too slow a speed, while the combs are in a position with the top-bars pointing toward the center of the extractor, the centrifugal force will pull the combs loose from the top-bar nearly every time. If the combs are built clear down to the bottom-bar this danger is lessened, but too many combs are not so filled out. The reversing must be done almost instantly.

Will the New Construction Supplant the Old?

It is difficult to make any prophecy. We do not believe the new principle will entirely take the place of the old. It will doubtless be used by the large producers where the saving of combs and time is everything, and who will do the extracting themselves. The new construction, however, requires a slightly larger can. The mechanism is much heavier and more expensive. The old style of construction permits reversing more than once; but, of course, the reel has to be slowed down for the first reversing, and has to be stopped for the second reversing. This takes time. The whole matter, therefore, resolves itself into a question of the value of time, the saving in the combs, and the relative costs of the two machines. With the purchasing power of the dollar decreasing and the cost of time increasing, saving minutes and combs is an important consideration. The new machine will, undoubtedly, save both time and combs in the hands of an intelligent and careful man. Where help is incompetent or careless, the old principle would be as good or better, and somewhat cheaper in first cost. This is only another way of saying that the new extractor is not fool-proof in respect to comb breakage, but is a markedly better machine when rightly used than any hitherto made.

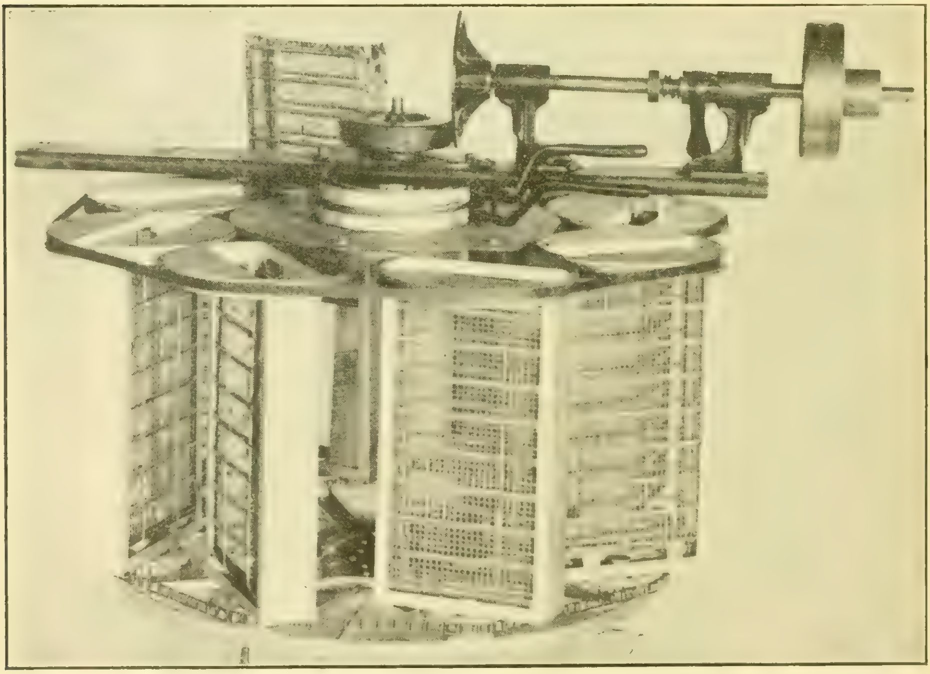


Fig. 3.—This shows the internal mechanism of the perfected Buckeye central-axis reversible extractor. The reversing is accomplished by a pull on the lower brake-lever which in combination with the chain and sprockets causes the pockets to revolve on the central pivots half a turn, when they are automatically locked, and another pressure on the lever will cause the pockets to revolve another half-turn. Continuous pressure on the lever would keep the pocket reversing continuously. This we believe to be a mistake. Each of the pockets is removable, as shown in the background. The top hand lever controls the brake that stops or slows down the reel after the combs are emptied. The steel band around the top will probably be replaced by rollers.

FROM THE FIELD OF EXPERIENCE

PROTEST AGAINST ELIMINATION

Why Honey Labels Should Retain the Words "Pure Honey."

In December Gleanings, page 797, C. M. Elfer makes some radical statements in regard to using the words ''pure honey'' on labels and advertising. While we agree with him that it is not necessary, so far as proving the purity of the honey, or so far as the pure food law is concerned, we do not agree with him that all labels bearing the words ''pure honey'' should be destroyed, and that these words should be ''eliminated,'' if some beekeepers have good reasons for using them, and choose to do so.

While we do not know how Mr. Elfer sells his honey, we can make a close guess that he does not sell it to a mail-order trade scattered over a good many States, or else he would not make some of the statements he does. We have scattered 23,000 pounds of honey this season to this kind of trade, and have been shipping our honey to this trade for the past 8 or 10 years, dealing with all kinds of people. Many of them know little about honey, and much less about the pure food law and what it requires. We have been trying in all these years to educate our customers along these lines as best we could, and believe we have done considerable good; but I am afraid we shall not live long enough to have the coast clear for the next generation.

When we do not put the words ''pure honey'' in our advertisements, this is a sample of what we get: ''Is your honey pure? Does it have any peculiar flavors other than honey? We want to buy some honey, but want it pure with no peculiar flavors other than honey.'' Another from an old customer: ''Is your honey pure? I have been under the impression that it was, but wanted it straight from you. Some here have wanted to know.'' These two letters are a sample of many we get when these two ''hackneyed'' expressions are left out of the advertising, and off the label.

In selling honey to the mail-order trade there is a great amount of correspondence to be taken care of at best, and having had quite a little experience with this trade, we have become pretty well acquainted with the usual questions asked, and endeavor to cover the ground as much as possible in our advertising and price lists in order to cut out all unnecessary letter-writing, and these two words ''pure honey'' would be about the last to be eliminated from our advertising, etc. They have saved us many dollars in postage, stationery, and time. While they may not be necessary to prove the purity of our honey, they are essential in our business to save time and money. Very much depends on the trade one sells to as to what is required on labels, and in advertising. If one is selling honey to customers whom he can meet face to face, many of these little things can be explained, and soon one has them educated along lines that would take far too much time and expense by correspondence.

If there is any question asked more than another by new customers in our honey trade it is the question as to whether it is pure, and when we know this, and know that these two little words put together save us both time and money, we would consider it poor business policy not to use them.

We believe, Mr. Elfer, if you could look over our mail in one season, and read some of the letters we get, that you would at least modify your opinion, if not change it completely, and incidentally do some smiling. W. S. Pangburn.

Center Junction, Ia.

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BEE HUNTING IN 1720

A Unique Account of the Method Used by Our Forefathers

The following article is a reprint of an article originally published in Latin by the Royal Society in 1720. It was afterwards translated into English, and I am indebted to the Curator of the Academy of Natural Sciences of Philadelphia for this copy. The Royal Society is an association founded in London in 1660 for the advancement of science. It has always held the foremost place among such societies in England. One of its principal publications is ''The Philosophical Transactions.'' This paper on Bee Hunting is here reproduced word for word with no change in the lettering, punctuation, or quaint mode of expression. Altho written two centuries ago, these directions for finding ''where the bees hive in the woods'' are not very different from those which would be followed by the modern bee-hunter, when engaged in this fascinating pursuit.

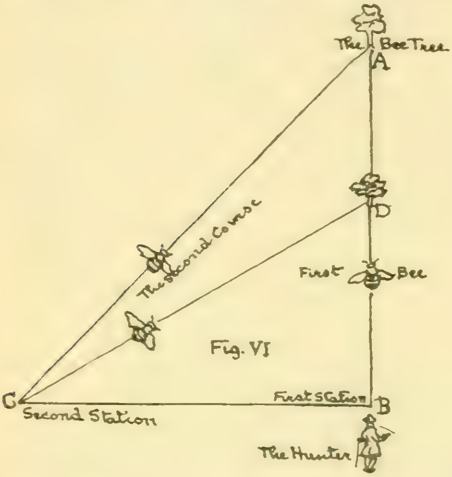
AN ACCOUNT OF A NEW METHOD IN NEW ENGLAND FOR DISCOVERING WHERE THE BEES HIVE IN THE WOODS, IN ORDER TO GET THEIR HONEY; BY MR. DUDLEY. ROYAL SOCIETY, PHILOSOPHICAL TRANSACTIONS, *No.* 367, A. D. 1720.

The hunter in a clear sun-shiny day takes a plate or trencher with a little sugar, honey or molasses, spread thereon; and when he gets into the woods, he sets it down on a rock or stump: This the bees soon find out; for, it is generally supposed, that a bee will smell honey or wax at above a mile's distance. In a box or other conveniency the hunter secures one or more of the bees, as they fill themselves; and after a little time, he lets one of them go, (for when one goes home from the sugar plate,

FROM THE FIELD OF EXPERIENCE

he returns with a considerable number from the hive) observing very carefully the course of the bee there, for after he rises in the air, he flies directly on a straight course to the tree where the hive is.

For this purpose the hunter carries with him a pocket compass, his rule and other implements with a sheet of paper; and sets down the course, supposing it west, or any other point, and by this he is sure the tree must be somewhere in a west line from where he is; but he wants to know the exact distance from his station: In order to determine that, he makes an offer either north or south (suppose north) an hundred perches or rods (if it be more, it will be still more exact; because the angle will not be so acute) then he lets go another bee, observing his course also very carefully; for this bee being loaded, will, as the first (after he is mounted to a convenient height) fly directly to the hive; this second course (as it must be called) the hunter finds to be south 54 degrees west; then there remains nothing but to find out, where the two courses intersect or, which is the same thing, the distance from B to A or from C to A for there the honey tree is. For which reason, if the course of the second bee from C had been South west by south, viz. to D; then the hive tree must have been there; for there the lines are found to intersect.



Quaint illustration of the old-time plan of locating bee-trees.

All this is founded on the straight or direct motion of bees when bound home with their honey, and this is found to be certain by the observation and experience of the hunters every year; especially, since this mathematical way of finding honey in the woods has been used with such success.

An ingenious man of my acquaintance the last year took two or three of his neighbors that knew nothing of the matter, and after he had taken his bees, set the courses the first and second bees steered, made the off-set, and, taken the distances from the two stations to the intersection, he gave orders to cut down such a tree, pointing to it; the laborers smiled and were confident there was no honey there, for they could not perceive the tree to be hollow, or to have any hole for the bees to enter by, and would have dissuaded the gentleman from felling the tree, but he insisted on it and offered to lay them any wager that the hive was there, and so it proved, to the great surprise of the country-men.

All the bees they have in their gardens or woods, and which are now in great numbers, are the produce of such as were brought in hives from England, near a hundred years ago, and not the natural produce of this part of America; for, the first planters in New England never observed a bee in the woods, till many years after the country was settled: But what proves it beyond dispute is, that the Aborigines (the Indians) have no word in their language for a bee, as they have for all animals whatever proper to, or aboriginally of the country; and, therefore, for many years called a bee by the name of Englishman's fly.

They formerly used to find out honey in the woods by surprising and following one bee after another by the eye, till at length they found out where the bees hived. It is observable, that when bees swarm, they never go to the northward, but to the southward, or to a point inclining that way.

Miss Josephine Morse.

So. Lancaster, Mass.

BEEKEEPING IN FRANCE

The Quaint and Queer Beehives Seen by an American Soldier

In southern France at the little village of St. Morillon, about 20 kilometers south of Bordeaux, my battalion was stationed for a three-weeks' training in machine-gun maneuvers. Between work I chanced upon six old-fashioned basket hives. These were about three feet high, eighteen inches across the bottom, and tapered up to a point at the top. The baskets were made of willow sprouts woven closely together, and the bees completed the job by filling the small openings between the weaving with propolis. The hives were protected from the rain by sheaves of straw jammed down over the point of the basket and were placed on wooden stands, a small opening for the entrance being cut out of the bottom of the basket. It was summer, and the bees were working quite industriously. I couldn't resist the temptation to peek inside; so I carefully lifted one of the baskets. I say **carefully**, for I didn't know what kind of a disposition a French bee has. The bees were clustered over the comb and had a goodly

Fig. 1.—The writer in a French apiary near Chonville, France.

FROM THE FIELD OF EXPERIENCE

share of the sweet stuff. Just to look at it made my mouth water, and since honey is not one of the regular army rations I was naturally tempted to taste just a little. So I broke off a small piece of the honey. And talk about "Job's nectar"! Why, man, it didn't have a thing on this honey! The bees then began to realize that their company was getting a little too fresh; so I was forced to make a hasty retreat.

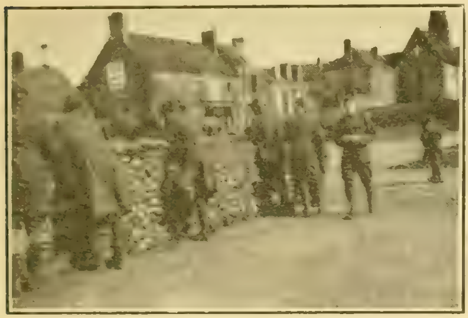


Fig. 2.—Soldiers eating bread and honey on stone wall at St. Mars de Loquenay, France.

Later in the fall, after Fritz had "hollered enough," our division was stationed at the little village of Chonville, 20 kilometers south of St. Mihiel. Here I found several hives of the old box-hive type, as shown in Fig. 1. I thought with these bees around there would surely be some honey in town; so I went to every grocery store in the village and at last I succeeded in finding some. Luckily I tasted it before paying out my hard-earned francs. It was the most sickening stuff I ever tasted. However, I was not to be discouraged, for my longing for honey must be satiated. So the first opportunity I had I went over to Commercy, about a five-mile hike, and finally succeeded in getting a small can of about a quarter-pint capacity. It was a very attractive package, and I shelled out the equivalent of eighty cents. The old adage, "Fine feathers don't always make fine birds," was truly applicable in this case; for the neat, attractive package contained a black, strong, sickening-smelling honey. To cap the climax there was a piece of corn husk in the center of it. As to what this was doing in there I cannot say, but I imagine it was just some of the trash that hadn't been strained out. I was surely disappointed with all French honey.

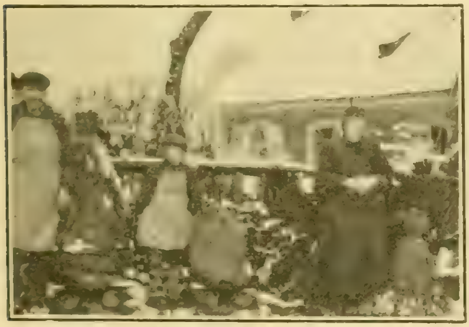


Fig. 3.—French family in their apiary. Note straw protection of hive at left of the man, and the hive insulated with cow manure at left of boy.

After ages and ages of waiting, early in the spring, we finally started for the embarkation point. On our way we stopped at St. Mars de Loquenay. While there we went to a grocery store and, lo and behold, there was a five-gallon jar of the finest white granulated honey that I ever saw. I bet there was more honey sold in that store then than there had been for the last 50 years. We also bought some butter, and then we all went up on the public square and using a stone wall for a table we gorged ourselves with this delicious food. The accompanying picture shows us thus pleasantly occupied.

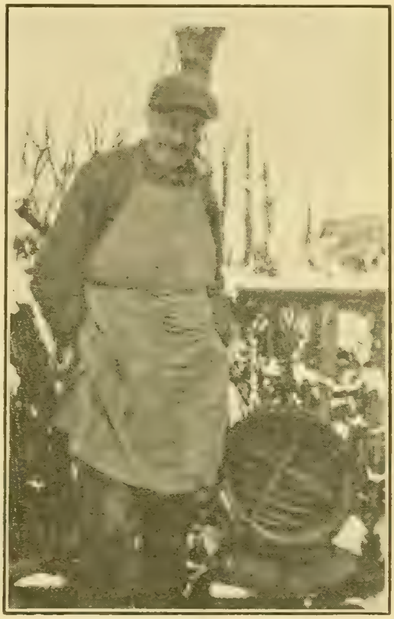


Fig. 4.—Frenchman standing beside upturned hive, having cow-manure insulation.

I learned that this honey was raised nearby, several apiaries being in that vicinity. So a comrade and myself went on a bee-hunt. We succeeded in finding four of the quaintest hives I ever saw. They were made a great deal like those I described and told of seeing in southern France, but were smaller and as a further protection the baskets were plastered to the depth of about an inch and a half with cow manure, which

FROM THE FIELD OF EXPERIENCE

gave an insulation to cold that rivals "The Hive with an Overcoat." I turned one of them over and the bees were clustered in the top. In spite of the extreme coldness of the weather they seemed quite comfortable, and were even lively enough to resent our visit. This style of hive, as near as I was able to make out, was originated by the Belgians and seemed to serve the purpose for these poor people as well as the modern hive serves our purpose. I secured a picture of the owner's whole family, wooden shoes and all, posing in their apiary (Fig. 3). I couldn't help but wonder if that nice white honey we had been getting at the store came from that kind of a hive. Of course, these old-fashioned hives that I have mentioned are not used by the more modern beekeepers in France, but I never got the chance to find one of the more modern outfits. Donald F. Bell.

Camp Verde, Ariz.

* * *

SURPLUS FROM JEWELWEED

Unusual Yield. Bees Gather Nectar Under Adverse Conditions

At our Minnesota State Fair last fall a number of well-known beekeepers desired to know the name of the flower from which their bees were gathering nectar, when they returned to the hives with their backs white with pollen. From the description given I knew at once that it was the jewelweed, or touch-me-not (*Impatiens biflora*), a flower adapted to pollination by bumblebees.

That season my bees were in a locality in which more jewelweed grew than I had ever seen before in one place. When I saw the young plants growing up I said, "Oh, if jewelweed were only a honey plant!" This plant grows in moist meadows, or along the borders of streams. The pendulous yellow flower spotted with reddish brown forms a conical sac with a strongly inflexed spur, capable of holding considerable nectar. The ripe seed-pods burst when touched and expel the seeds several feet, whence the plant is sometimes called touch-me-not. The anthers and stigma lie on the upper side of the flower, and when a bee seeks the nectar it must enter far into the dilated sac and necessarily dust its thorax with the white pollen. Altho honeybees nearly disappear from sight they are probably not able to drain all the nectar from the spur, which is about half the length of the sac.

The jewelweed is in bloom for a long period beginning early in August and continuing to bloom on into the month of September. I have been interested to notice that bees were able to work on this plant when rain or dew rendered it too wet to gather nectar from other plants. Owing to the nodding position of the blossom it is impossible for rain to wash the nectar out of the spur, and a bee can enter within the sac and gather the sweet spoil without getting wet. My bees would start out soon after a rain or heavy dew and come home with their loads of honey, when it would have been far too wet for them to visit other plants.

Later in the season, after the flowers had seen their best days, altho they still yielded some nectar, and the roadsides and waste places were bright with goldenrod, the bees would go out, after a rain or on dewy mornings, and bring home their loads of jewelweed honey; but when the sun had dried the flowers they would turn to the goldenrod—not because they liked it better but probably because it yielded nectar more freely than jewelweed. I know that the nectar is very sweet, for I have broken open the spur and robbed it many a time. I do not know the flavor of the honey. But the greater part of my fall honey is from jewelweed, with some admixture from fireweed and goldenrod.

Florence Eleanor Lillie.

Wayzata, Minn.

* * *

BROOD HATCHED IN THE CELLAR

It is Not Lost by Dysentery for Want of a Cleansing Flight

Dr. Phillips tells us that brood which hatches in the cellar is lost, because young bees must have a cleansing flight; and that if they do not, they will die of dysentery. I cannot agree with him on this point, as I have, on two different occasions, proved to my satisfaction that this cleansing flight is not necessary.

Three years ago this fall we had an apiary of about 80 colonies that had been drawn on quite heavily in filling late orders, and were but little better than two-frame nuclei with very little feed; but each one contained a choice young queen which we wished to winter over for filling early orders. These were put in the cellar about Dec. 1, and two or three weeks later they were each given a cake of hard candy. This started the queens to laying, and during the latter part of January we observed brood in all stages, and young bees hatching. In the spring, when they were taken from the cellar, they were stronger than they were when put away for winter, and only three or four colonies showed any signs of dysentery.

At another time we dequeened a colony of black bees and gave them a young Italian queen just before putting them in the cellar. This hive was plainly marked, with a view of making a note of its condition in the spring, at which time we found that at least half of its bees were Italians.

Medina, O. Mell Pritchard.

SIFTINGS

J. E. Crane

SUGAR has been selling in Washington for some time past for from 15 to 22 cents a pound. I think 20 cents is now the regular price.

* * *

On page 10 of January Gleanings, referring to the "McDonald Metal Combs" the Editor says: "Our experiments thus far would lead us to feel, however, that for straight brood-rearing or storage purposes the bees prefer combs made of wax." Last season it was our experience that frames of foundation placed beside the aluminum comb were built out and filled before that of the artificial comb. I understand some desirable improvements have been made in them the past season, and we may still hope for something of value to come of them; or, it may be, that after bees have once bred in them, they may in another season accept these combs more readily.

* * *

"The Old Lesson, Taught Again," beginning on page 16, is a most valuable editorial, that should be read over and over by those for whom it was written. It was especially appreciated by myself, as I had to clean up a lot of about the same size and condition two years ago. If the owner of this lot of honey came off with the loss of but one-third the price of his honey, he was fortunate. When will people learn wisdom, and save by a little thought and care?

* * *

The second paragraph on page 24 begins, "If there are any beekeepers in New England in need of sugar," etc. It should read Vermont instead of New England. I am sorry to say the author of "Siftings" is quite human and liable to make mistakes just as other mortals do. The State of Vermont does not expect to furnish sugar except to its own citizens.

* * *

The article on page 36, "Propolis Makes Good Floor Paint," doubtless gives the experience of the writer, but as he informs us that his propolis probably comes largely from the sweet-gum tree, its value for this purpose may not be as great when gathered from other sources. It might be worth while for beekeepers in different sections to test their propolis for this purpose, and report the results.

* * *

Speaking of the danger of fermentation Mrs. Allen, on page 28, recommends extracting only combs that are sealed solid. But how is one to follow such advice when he leaves his extracting supers on until the close of the season and after, and yet ten per cent are not sealed solid? Perhaps ten per cent of the combs or cells will remain unsealed. We uncap the sealed combs and extract, and have no trouble, but our honey is largely from clover. It might not work so well with some other kind. The fact is that every beekeeper must watch out and think for himself.

* * *

On page 18 J. A. Green inquires, "How Long Can They Live?" referring to the bees, and gives an example of a small colony that had survived for seven months. With all our modern knowledge of bees, so far as I know, no one can tell how long a worker bee may live. It all depends on many things. Some bees may be endowed with greater powers of endurance than others, or are longer-lived, as we say. Perhaps more will depend on the activity of the bees than on anything else. We all realize how much shorter-lived bees are in summer than in winter. The active life of summer proves far more fatal than the cold of winter. A very intelligent beekeeper was telling me not long since of finding some bees chilled and stupid with cold. A part of them he placed in a warm room where they became very active but lived only two or three days. Others were kept in a cool place; so they remained quiet or semi-torpid. These lived several weeks. Other examples might be given to show that the length of the life of a bee depends largely upon its inactivity. This would go to show that the best success in wintering would come from keeping bees just as quiet as possible from the time they are thru brooding in the early fall until the following spring. In sections where the winters are somewhat open, it is better to keep bees in hives well packed and shaded rather than in thin hives in the sun.

* * *

That item by J. L. Byer in regard to testing thermometers is well worth remembering. "Just place your thermometers in a mixture of snow and water, and if they register 32 degrees they are correct." [See A. N. Clark's "Heads of Grain," "Thermometers for Bee-cellars," page 161.—Editor.]

* * *

T. R. Gorden's method, given on page 36, for advertising and increasing the sale of honey is worthy of commendation. There is no reason why beekeepers should not be as interested in advertising their peculiar product as others are in advertising theirs. Much has been done in the last few years; but much remains to be done, if prices and demand are to keep up with the prospective supply that is likely to come with improved methods of production.

A CROSS COUNTRY FLIGHT

Stancy Puerden

THIS flight was not by airplane, altho a friend in San Antonio professed to be surprised to see me step off a prosaic Pullman. Maybe I shall live long enough to be able to cross the continent by the aerial route, but so long as the rate continues to be a dollar a minute I shall be thankful that the Puerden family purse permits me an occasional railway journey.

California and Heaven have been almost synonymous terms to me for years, but with this difference—I am in no haste to go to the latter place. So, when the head of the house announced his intention of making a business trip to California in January and invited me to go with him, there was rejoicing. And when he decided there was no reason why our sixteen-year-old son, who is completing his High School course in midwinter, should not accompany us, there was yet greater rejoicing.

When we left Ohio snow was a foot deep on the level, it was stormy, and the air had that damp, penetrating coldness which is the most unpleasant feature of our winters. Two mornings later we awakened to the warmth, cloudless skies, and brilliantly clear air of Texas. All day long we rushed across that vast State, and the amazing thing about it to me is that we were never out of sight of one or more ranch dwellings. Indeed, from the car windows, one would believe Texas to be more thickly populated than Ohio; for, owing to the wonderfully clear air, the absence of forests, and the generally level character of the country, houses and towns were visible for miles and miles in every direction.

I imagine that Texas is beautiful when spring starts the growth, and it was not unattractive in January; for quantities of mistletoe clung to the barren branches of trees, and there were bushes covered with brilliant red berries, giving the landscape the effect of still bearing its Christmas decorations. I believe we passed enough mistletoe that day to furnish every girl in Christendom a stolen kiss on Christmas, and it was growing in such luxuriant clusters, too.

WE broke the long railroad journey by spending the night and half the next day in San Antonio, a beautiful city, both for its historic buildings of the time of the Spanish occupation and for its fine modern homes and business structures. It is impertinent for a tourist to attempt to express her opinion about a city after such a brief stay, but stored in my memory is a delightful impression of San Antonio, western in its progressiveness and enthusiasm, southern as to courtesy, interesting because of the old Spanish influence, warmed and enriched by that wonderful sunshine and clear atmosphere. I was told it is a fine locality for beekeepers.

Yes, I know Texas suffered some very bad weather just before we were there; but I have noticed fine climates are quite human in that they all have times when they behave abominably. Nothing mortifies a Southerner or Westerner more than to have to apologize for his climate, which is misbehaving temporarily.

AFTER riding all the afternoon and night, still in Texas, we reached El Paso early in the morning. Here we could not only look into two great States but over the Rio Grande into Mexico. We failed to see the bridge from the car windows, but I am quite sure at one point I could have waded across the Rio Grande. It is a most insignificant-looking stream and is distinctly disappointing to be the boundary between two great nations. Probably Uncle Sam understands his business, but if I lived near the frontier now I should want army posts pretty numerous and strong to give me any feeling of security from outlaws.

Before we left home I was told that our route over the Southern Pacific on the ''Sunset Limited'' was not particularly beautiful or interesting. I only wish all reality could exceed anticipation as it did that day. I have seen many places famous for their scenic interest and beauty, from the Atlantic to the Pacific, from Canada to Cuba in the blue Carribean, but never in all my life have I seen more beauty in a day than in riding thru New Mexico and Arizona, thru so-called desert country.

All day long, on the horizon were tumbled mountain ranges, sometimes so distant as to seem unreal, their peaks in varying pastel tints floating above a low blue haze on the horizon. Sometimes the great hills drew closer so we could see their seamed, barren, and rugged outlines. But in the enchantment of that clear air, bathed in the dazzling sunshine, those harsh and rugged mountains took on the soft colorings of all the beautiful sunsets you ever saw. As the train slightly changed its direction from time to time, the colors varied until there was a shifting panorama of terra cotta, copper, rose, wine, amethyst, violet, blues ranging from turquois and sky blue to the deepest ultramarine and navy, all blended or contrasted as no human artist could do. Cloud shadows deepened peaks to violet in sharp contrast to adjoining peaks, which were a shimmering rose in the sunshine. And in the foreground was the plain, dotted with sagebrush, enlivened by the rich green of the yucca or Spanish bayonet, by various sorts of cacti, and by many strange plants and shrubs I could not name. Now I have always disliked a potted cactus. It is grotesque and out of place in the East, but in its desert environment it is fitting and even beautiful.

I am such a mountain lover that I have often wondered why nature could not have spared a few superfluous western mountain ranges for us in Ohio. But without the dazzling Arizona sunshine and atmosphere I am not sure her mountains would have any beauty. And that dry western air has such a trick of annihilating distance and bringing out the details of distant objects with startling distinctness.

One of the interesting features of the Arizona semi-desert country is its contradictions. How I did wish for a guide who could tell me why in one locality we saw acres of plain covered with shallow water when just a little farther on was a dry river, and in every region where there were settlers were irrigation ditches. Some of the passengers suggested the water was a mirage, which I would have liked to believe, but in some places the water came clear up to the tracks and it looked just as real and wet as in Ohio.

The porter said there had been a recent heavy rain which had flooded the tracks, and yet oftener and oftener thru the day, as we approached the desert proper, there were those dry rivers, arroyos I believe they are called, and most of them looked as dry in the channel as the Sahara desert ought to look.

Another odd thing was to see so many cattle. They must be contented with a menu quite different from that of their eastern cousins. I saw one enterprising steer nipping experimentally at a kind of a cactus. In Arizona it appears to be the fashion for cattle to wear their horns, and those horns looked like most efficient weapons, too.

Toward evening we ran into a rougher country, turning and twisting among the foothills; numerous new and interesting varieties of cacti appeared, and presently we saw the tall, branching variety, some specimens being as thick thru as a good-sized tree trunk.

TWO prosperous-looking elderly couples occupied the section just in front of ours and the one opposite. All day long they played bridge with more or less good-natured wrangling, growing less good-natured as the day wore on. At intervals the men went back for a smoke, when their wives produced embroidery and embroidered assiduously, apparently never raising their eyes to the windows to that gorgeous panorama of mountain and plain. But just at sunset, when the mountains in the east were reflecting glowing shades of copper, crimson, and rose, the card-playing, embroidering ladies awakened to the fact that there was some scenery outside, and they were voluble about it for some five minutes.

One blase young gentleman of thirteen, in his conversation with our boy, mentioned the fact that he had crossed the Atlantic six times, altho he had never before crossed our own country. Indeed, he was only traveling thru it on his way to Honolulu, and he continually deplored the slowness of the train.

I have always expected that some time in the future the nicest traveling companion I know would take me abroad. But the older I grow and the more I see of our own country, the less I care about leaving it. Why should we be so anxious to wander thru European art galleries when no human can put on canvas the beauty which the Great Artist has so generously created in our own country? Man has never equaled nature yet, and while nature has been lavish enough with beauty in all parts of the globe I don't believe there is any other country which can equal ours in variety, magnificence, and grandeur of scenery. There are hundreds of fascinating places I must see in our United States before I care to cross the ocean.

To return to the Arizona sunset, when the sudden southern night dimmed the glowing tints of the mountains on one horizon and darkened the gold sky against which the black mountains were outlined in sharp relief on the opposite horizon we went to bed to awaken amid the flowers, fruit ranches, and orange groves of southern California. Isn't it a pity trains rush one thru so much interesting country in the dark?

IT is quite the fashion now to deplore the poor service in Pullmans and grumble at the meals on the diner. Maybe we happened on an unusually favorable time to travel. At any rate, when my sister, who is spending the winter in Los Angeles, met us at the train she said, "I never before saw a woman look so fresh and rested after a railroad trip across the country. How did you do it?" I didn't do a thing but enjoy myself every minute of the day and sleep well at night in spite of being pigeon-holed in a sleeping-car berth. Maybe one reason our party slept well is because we seized every opportunity for a bit of fresh air and exercise by jumping off at station stops.

We found the meals in the diner good and reasonable in price, and it is gratifying to find individual honey on dining-car menus practically the country over.

BELOW I am giving a few recipes prepared before leaving home. Try the honey eggnog when you have that faint "all gone" feeling. The peach ice cream made with honey is also especially fine.

HONEY EGGNOG.

1 egg 1 teaspoon cocoa
1 teaspoon honey ¾ cup milk
Few grains salt

Break the egg in a glass, beat slightly with a fork, add the cocoa, honey, salt and

(*Continued on page* 181.)

Beekeeping as a Side Line

Grace Allen

When winter brings day after day of rain to Tennessee, as it has done several times this winter, it drives home the realization of one great difference between this section, as suited to beekeeping, and sections much further north, Canada, for instance. In the far North the rain wouldn't be rain, often, it would be snow; and it would pile softly up around the hives, protecting them from cold winds. Then in the spring, it would gradually melt, letting the moisture into the ground when it would do so very much good.

Take one little rainy spell we had in January this past winter; it rained almost steadily for more than three days, the precipitation during that period being four inches. According to the estimate of the United States Weather Bureau, it takes about 10 inches of snow to equal 1 inch of rain. So, had this particular rain fallen as snow, it would have covered our January earth practically 3⅓ feet deep — to our waists. If all our cold, splashy, dripping, soaking wetness of that time could have been thus stored in the form of deep, soft, blanketing snow, to be used later as permeating moisture sinking gently down to the roots of things, it would have made for better beekeeping conditions. But our precipitation is nearly always rain, not snow. At this writing (Feb. 7) not one flake of snow has fallen on Nashville and her environs this winter. This matter of winter rains, then, and days damp and chill, becomes one of the factors important in the wintering of our bees. Moreover, the spring moisture so necessary for the swift coming of the clover depends entirely upon spring rains, where there are no melting snows. Let those who will, laugh at the continual harping of beekeepers on the word ''locality''; the countless variations in conditions make the beekeepers of one part of the country stagger under problems utterly unknown, perhaps, to those of some other section; while at the same time they may tread a veritable primrose way as to other conditions, the envied of all observers. Locality, Horatio, locality.

* * *

How does it happen that bees never stung anybody's grandfather? They never did, you know. Anyway, there is never a gathering of people that someone among them did not have either an uncle or a grandfather who kept bees, and they never, never stung him. Even out at Peabody College last month, when I gave a talk on beekeeping at an evening round-table of county-agents-to-be gathered before an open fire, it was the same story. ''Grandfather swarmed them and robbed them, and never got stung. But just let me go near them!'' Of course, tho, there's one thing to be remembered about Grandfather — except for thus skillfully ''swarming'' them and ''robbing'' them, he didn't do much to them, you know, in years gone by. He seldom ran any risk. His apiarian career was singularly free of manipulations. There were relatively few chances to get stung. Incidentally, he didn't get much honey either. But now that grandfathers and uncles and all of us are facing the open hive somewhat oftener, gentle motions and bee-proof veils are better things to depend on than any traditions of favoritism, or any vague hope of inheriting Grandfather's happy lot—unread, unhoneyed, and unstung.

We had a delightful taste of Virginia hospitality that night at Peabody College, by the way; the Virginia club had had a party and there were baskets of loaves and fishes left. So after the talk we were taken behind the scenes and refreshed with sandwiches and coffee and friendly courtesy.

* * *

While we have never done a mail-order business, we have often mailed out extracted honey to friends or members of the family. This has always been in friction-top tin containers, which Mr. Allen packed most skillfully and thoroly. These have always been accepted at the postoffice without protest until within the last few weeks. Now the window clerk refuses to accept honey except in screwtop containers.

* * *

A High School boy of Nashville bought two colonies last fall, his first bees. That was an unfortunate time to buy, unless one could know just how things were inside. These bees were in box hives, and all he knew about them was that one was considerably heavier than the other, and that the man he bought them from was ''a good old fellow.'' As the weeks went by, the pile of dead bees grew suspiciously large in front of this light hive. One warm day he opened it. The bees still in the box were as dead as those outside, and there was not an ounce of honey left. The other hive was still heavy, with bees flying. Fortunately for this beginner, the ''good old fellow'' agreed to give him another colony in place of the one that died. But ''never again'' says the lad, ''will I buy bees in box hives in the fall.''

When this young lad, utterly inexperienced, first visited our yard, he surprised us by knowing what things were, when we called them by name—queen, brood, super, queen-excluder, etc.—and he knew what part they played in the hive. Some good instinct had led him to get hold of a government bulletin and a supply catalog, even before getting his bees. He had studied them both pretty thoroly. Apparently he knew the catalog from Alexander Feeders to Zinc Sheets. I commend this reading practice to others—consistently, too, for I did it myself—not the catalogs, tho. They terrify me to this day. But for six months before I ever saw the inside of a hive of bees, that is from October to March, I was steadily reading Gleanings, a bit blindly at first, to be sure, yet with constantly increasing understanding. We bought A B C before we bought bees, and when that first colony came, with no one to show us how we opened the hive, found the first queen we had ever seen, clipped her with manicure scissors and much trembling and entire success, and passed solemn judgment on the question of the general condition of things. Visiting other yards is the easiest way to learn; yet when one knows in the fall that he is going to buy in the spring, those long winter months ought to be made good use of by careful reading and study.

* * *

Nearly everyone knows that Maurice Maeterlinck, the great Belgian dramatist, is in the United States. We thought he was coming to Nashville to lecture. And I was one great thrill! But the negotiations fell thru. It was hard to know whether that part of me that loves page after page of verbal beauty, or the part that loves bees, was more disappointed. But when we later learned that his speaking English had not proved equal to the demands of lectures, and the remaining lectures were to be given in French, our disappointment, while by no means lessened, took on a somewhat different tone. Even tho they do not care for the strange and wonderful beauty of ''Pelleas and Melisande'' and ''Barbe Bleue'' and the other strange and wonderful plays, nearly everyone had read and loved ''The Blue Bird''; while great hosts, even of those who know nothing else of bees but this great book, have been fascinated by ''The Life of the Bee.''

There are some beekeepers of broad experience and signal success, some men of learning and science, who advise beginners against the reading of this book. ''Don't pay any attention to such a work,'' they say; ''read A B C or Phillips or Pellett or Miller or Gleanings and then you'll learn something.'' To me that's a little like saying read only the Book of Proverbs with its ''Hear, my son, the instruction of a father,'' and not the Psalms chanting majestically, ''Lift up your heads, O ye gates! And be ye lifted up, ye everlasting doors! And the King of Glory will come in''; like knowing the Ten Commandments with their ''Thou shalt not kill—steal—bear false witness'', and not the prophets with their exalted phrases, ''The earth shall be filled with the glory of the Lord as the waters cover the sea''—with their thundered, ''Let justice roll down as waters and righteousness as an overflowing stream.''—with their noble simplicity of ''What doth the Lord require of thee, but to do justly and to love mercy and to walk humbly with thy God?''; like making a study of the spectrum, with its waves of light, 390 millimicrons long in the violet and lengthening to 770 millimicrons long in the red, and never standing with lifted eyes before the rainbow, or feeling the responsive surge in Wordsworth's

"My heart leaps up when I behold
A rainbow in the sky."

Oh, that way with books will never do—it is not half good enough. Over and over, repeatedly, would I urge solid study, **thoro** mastery of facts and principles; but just as often and with perhaps more earnestness do I cry out for the eternal reaching out of our spirits towards beauty and grace and the inspiration of something not to be measured nor weighed nor set down in rules, but to be drawn into our inmost souls and made forever a part of us.

So it seems to me that every beekeeper, especially every sideline beekeeper, to whom the bees may frankly mean something more vital than dollars and cents alone, may well read and love ''The Life of the Bee.'' Not as a text-book should he read it, for not as a text-book was it written; nor as a text-book should it be judged. See, in his first chapter, the author says: ''It is not my intention to write a treatise on apiculture, or on practical beekeeping. Excellent works of the kind abound in all civilized countries * * * Dadant * * Cook, Cheshire, Cowan, Root, etc. * * * Nor is this book to be a scientific monogram on *Apis Mellifica* * * * I wish to speak of the bees very simply, as one speaks of a subject one knows and loves. * * * The reader of this book will not learn therefore how to manage a hive.''

That is frank and honest and removes the beautiful volume at once from the class of text-books, to be judged wholly on its own merits. But there are thousands who waive the privilege of judging it at all—they merely love it.

* * *

IN SPRING.

Earth wears her winter outwardly,
But the tender spring
She draws from her own spacious heart
Where she has held a place apart
To do her dreaming in.

Then as she may she lays aside
Bitterness and chill,
To spread her woven dreaming out
On all the grass and trees about
And over every hill.

I wish all hearts were dreaming hearts.
Then a mood like spring
Would clothe in beauty every thought,
And deeds of woven dreaming wrought
Make life a gracious thing.

FROM NORTH, EAST, WEST AND SOUTH

In Northern California.—We are again passing thru another winter with a shortage of rain. In the northern part of our district the rainfall is but one-third of the normal, and in the southern part less than half the normal amount has fallen. The foothill honey trees and shrubs will be the greatest sufferers, as the deeper soil is lacking in sufficient moisture to insure the proper vigorous growth which results in the best nectar-secreting conditions during spring. Such plants, then, as manzanita, wild cherry, poison oak, sage, yerba santa, cascara, sumac, wild alfalfa, and wild buckwheat are considerably below par at this writing (Feb. 5), and will need several inches of rain this month and next if even half a crop is to be expected from these sources. The willow along the rivers is now in bloom and during the warmer hours of the day is worked quite freely.

Answering a letter of a correspondent relative to the two principal brood diseases, the editor of the California Honey Bowl in the October issue, page 9, makes the following statement: "Friend R. I have for years believed that European and American foul brood was one and the same thing. As you say, different stages of the disease cause it to look like different diseases." Again, answering a correspondent on page 15 I quote the following: "* * * and right now I will take the opportunity to mention the name of another foul brood which is the worst of all, and does more to keep bees from turning out a profit to the bee growers than all the other diseases put together. It is the invisible bee disease." Owing to the fact that not a few subscribers to the California Honey Bowl are likewise subscribers to this journal, the writer believes that it is his duty to warn beginners in beekeeping that there is a difference between European foul brood and American foul brood. During the past few years California beekeepers have lost several thousand colonies because they could not differentiate these two diseases. Elsewhere in the same issue of the California Honey Bowl the editor recommends introducing a few drones into each nucleus so as to insure the mating of the queen and says, "As the queens fly, drones fly with them and the queens are mated with drones from their own hives." Following this plan presumably, one of the editor's correspondents writes that he introduced "about 2 drones to each hive that had virgins and fed a syrup. Today is a clear day and I have every right to expect a mating." The writer has never seen anything to indicate that virgins and drones possessing the same colony odor showed any greater attractiveness, one for the other. Furthermore, he does not recall ever having seen such a statement in print.

The exports of honey from California by water to European ports for the year 1919 amounted to 3,687 cases. During January there arrived in San Francisco from the Hawaiian Islands 511 tons of honey.

Modesto, Calif. M. C. Richter.

* * *

In Texas.—The beekeepers of Texas are justly proud of the fact that in the newly formed American Honey Producers' League they are represented by two officers. E. G. LeStourgeon of San Antonio is president of the new organization; and F. B. Paddock, formerly of College Station but now of Ames, Iowa, is one of the directors. While Paddock is no longer in Texas the Texas beekeepers know that he will yet look after their interests.

The condition of the honey plants of the State is still normal. From every section come reports that prospects of a horsemint crop were never better. In the semiarid section the abundant rainfall of the past year caused most of the chapparal plants to produce an enormous growth of wood; should rainy weather continue, it is probable that these plants will again this summer produce wood instead of fruit. If dry weather occurs from and after March, a big yield may be expected from huajilla, catclaw, mesquite, and the other chapparal plants. Over most of the State between Jan. 20 and Feb. 1, mistletoe, elms, peach, and several other plants were furnishing pollen for the bees. As early as Jan. 20 large areas south of San Antonio were yellow with the early Texas primrose, *Oenothera laciniata grandis B.* Bees were collecting pollen from it abundantly. Three species of composite plants were also in bloom, supplying pollen and slight amounts of nectar. At College Station, Feb. 3, the bees were bringing in much pollen. The spring beauty, *Claytonia virginica*, is blooming abundantly, and, along with elm, mistletoe, and peach, is furnishing pollen as well as small amounts of nectar. It seems from this that the natural impulse for extensive brood-rearing comes between Jan. 15 and Feb. 1.

The Texas Honey Producers' Association held their annual meeting in San Antonio Jan. 20. As a proof of their satisfactory service, the old officers were re-elected. An eight per cent dividend in cash and a twenty-five per cent dividend in stock were issued. The capital stock was increased from $15,000 to $50,000. The results obtained by this organization are equaled by few other co-operative bodies.

Director Youngblood announces that C. S. Rude of Garden City, Kan., has been secured as deputy foul-brood inspector to take the place of W. E. Jackson, who resigned that position last November to take up commercial work. Dr. M. C. Tanquary, the new State Entomologist, and Mr. Rude will begin work on Feb. 9.

During the past year many of the beekeepers of southwest Texas have been somewhat disturbed because the honey plant agarita, *Berberis trifoliolata*, was on the list of plants mentioned as carriers of the black stem rust of the small grains, given in Farmers' Bulletin 1058, "Destroy the Common Barberry." Agarita was included in this list because all native barberries were suspected. Dr. J. J. Taubenhaus of the experiment station is authority for the statement that agarita is not a carrier of rust, and as there is but a small acreage of small grain in the agarita country little damage would be done even if this plant did carry the rust.

A number of nectar flows of obscure origin exist in Texas. Several species of oak are reported as giving a nectar flow at blooming time. Last year certain post oaks were, to the casual observer, secreting nectar from nectaries located on the catkins and at bases of the bud scales. In many places, especially in central Texas, walnut and pecan are reported as nectar-producers. Whether this is true nectar or a secretion from insect or insect injury is yet to be determined. In the live-oak gall we have a peculiar condition. In all parts of Texas where live oak grows, nectar is collected from these galls from August until winter. This gall is a woody growth, caused by the work of a wasplike insect. This nectar is not secreted by the insect but by the woody growth, and it is in no way similar to the aphid secretion called honeydew.

Because of the various activities in bee circles the past year the county beekeepers' associations are more active than they have been for years. In many counties where there has been little interest the associations have elected new officers and outlined good programs for the coming year.

College Station, Tex. H. B. Parks.

* * *

In Iowa.—The beekeepers of Marshall County perfected a county association at a meeting in Marshalltown on January 24. This meeting was called by the county agent in co-operation with a few beekeepers who were interested in organization. In preparing the mailing list for notices of this meeting it was found that there were more than 125 people in the county who are interested in beekeeping. The meeting was very well attended, considering the weather, and the interest displayed in the meeting was far above the average. The program included talks by F. B. Paddock, State Apiarist, and E. W. Atkins, Extension Specialist from the State College. The "Value of Organization" was discussed by Mr. Paddock, and "Preparation for the Coming Season" was the topic of the talk by Mr. Atkins. The organization will bring the beekeepers of the county in much closer contact, and thru the county agent the assistance of the extension department will be brought to the county. During the coming year it is planned to hold a series of meetings thruout the county, at which will be discussed the methods of better beekeeping. The association hopes to begin its good work at once by a co-operative order for bee supplies. It is expected that the matter of marketing the honey crop for the coming season will be given consideration before the crop is ready to be disposed of. Plans are being made to establish a demonstration apiary in connection with the extension work that will be done in the county during the coming year. By means of this the members of the association will have an opportunity to study the effects of the improved methods for honey production.

During the month of December another county, Hardin, perfected the organization of a beekeepers' association. The efforts of F. H. Stacey, formerly a director of the Iowa Beekeepers' Association, are shown in this organization. The beekeepers of Hardin County have also arranged for the extension work in beekeeping to be conducted during the coming year. They are expecting to complete arrangements for the establishment of a demonstration apiary for the beekeepers of that county. The matter of marketing honey will be given proper attention by the association.

The organization of these two county associations can be said to be the direct effect of the movement started at the last Des Moines convention. There are now 13 counties organized, and at least six more are expecting to perfect an association in the near future. The amount of good which can come from these associations, scattered over the State for the uplift of the industry, is beyond estimate. The beekeepers are rapidly appreciating the benefit of co-operation.

There is now available to the beekeepers of this and other States an Advanced Correspondence Course in Beekeeping. Those who have completed the elementary course which has been offered during the past two years will welcome this opportunity to learn more of the exact details of beekeeping. There are, no doubt, many beekeepers who are producing honey profitably who want still more information concerning the substantial facts of beekeeping. This course is composed of 15 lessons, based on the text, "Langstroth on the Honey Bee, Revised by Dadant." Further information on this course can be obtained from the Extension Department at Ames.

The State Apiarist has recently undertaken a survey of the beekeeping industry of the State. This big task needs the co-

FROM NORTH, EAST, WEST AND SOUTH

operation of every beekeeper, for the results will be valuable only in proportion to the assistance given. This vital information has been lacking in this State, and it is hoped that the beekeepers will appreciate the value of this endeavor. A letter was sent to 3,500 beekeepers, and there are, no doubt, many more who should be interested in this work. The results of this work will be given to the beekeepers as soon as it is possible to compile the returns.

The State Apiarist Report for 1918 has been mailed from the office of the State Printer to the paid-up members of the Association for 1918. Other beekeepers of the State who are interested in this publication should write to the State Apiarist at Ames, to make arrangements to secure a copy of this report.

Arrangements are now well under way for the exhibit of the beekeepers of Iowa at the Mid-West Horticultural Show, which will be held this year at Council Bluffs in November. There will be plenty of good prizes for honey, which should attract entries from every section of the State. A new feature will be a large prize for the best exhibit by a county association. Plans should be made now by individuals and associations to enter exhibits.

The organization of the American Honey Producers' League is of great interest to every beekeeper in this State. Everyone will undoubtedly receive complete information on the objects of the League, and it is fully expected that at the annual meeting of the Iowa Beekeepers' Association next fall action will be taken to ratify the League and membership will be secured.

The necessary action of authorities in calling off the beekeepers' school came as a matter of regret to many over the State. There is no doubt but that such action was advisable under the epidemic conditions. At this time definite plans for the school to be held later have not been completed, and just what will be done is hard to say. On the part of many who could not attend the Short Course, there was a very strong tendency to enroll in one of the correspondence courses. This has led those in charge to feel that concentrated effort on the correspondence courses might prove very valuable to the beekeepers of the State. Beekeepers from many other States are enrolling in one of the correspondence courses.

Ames, Iowa. F. B. Paddock.

* * *

In Ontario. In the last issue of Gleanings I mentioned that Wm. Agar had left his bees in New Ontario all alone for the summer, after having piled eight full-depth supers on each colony. Possibly many readers will be wondering where the brood-nest was located when he went up in the fall to take off the honey, no excluders having been used. Contrary at least to what I would have expected, the queen in every case was in the old brood-nest, altho a few of the colonies had small patches of brood in supers next to the brood-nest.

In a late issue I gave what were current prices of clover seed here in Ontario; but during the last few days seed has taken another big jump, and first-class alsike is now quoted up to $34.00 a bushel, red clover $37.00, and sweet clover $19.50. Just how these extreme prices will work out so far as seeding next spring is concerned, is a question. Perhaps the seed is so dear that farmers will hesitate to buy it, even if the lure of big prices another season is expected, tho by no means a sure thing. These very high prices do mean that a big acreage of sweet clover will be sown, as it is much surer of a ''catch'' than alsike or red clover; so they will reason that the risk of total loss is not so great as if sowing the other clovers.

The ground has been continually covered with snow since the New Year came in; so clover now wintering should be faring all right. As to weather we have had during this period since snow came—well, it has been very, very cold altho milder since February came along. January gave temperatures down below zero so frequently that it became monotonous, and the January thaw, that some say **always** does come, did not come this year till February. How are the bees wintering? Really, I cannot recall a winter when I have gone into the yards as little as I have done this season. I noticed the other day at one apiary, which I went to for the first time since last fall, that two colonies with all natural stores were showing signs of dysentery, while others in the yard, all with some sugar syrup, appeared to be all right. But the extremely long spell of very cold weather is bound to have a bad effect on the bees especially where there has been little snow protection around the hives. Where colonies are short of stores or have inferior stores, a season like the present spells disaster. On the other hand, where the bees have abundance of first-class stores they usually seem able to stand about anything we may have in the way of winter weather, provided they are packed in a half-decent way.

Having mentioned that I had built a cellar last fall and that some bees were put in the same, naturally I have received quite a lot of letters from good friends giving suggestions as to ventilation, temperature, etc. The great majority of my correspondents were from Ontario, but some of the States were represented too, all the way from Ohio to Wisconsin. Incidentally, I might say that my cellar is not proving a success as now constructed. It is too damp for the temperature as low as it is—43 degrees all the time. Moisture forms on the ceiling in great drops and the bees are not as quiet as they should be, with, I should judge, too high a death rate—at least I think there are too many dead bees on the floor for the number of colonies in the cellar. But I started to mention this cellar again because of having just read in the February issue an account of how the bees are wintering in that big Medina repository. Forty-eight degrees is mentioned as the temperature at which the bees there are the quietest; while on the other hand, with but a single exception, all my correspondents want nothing higher than 45 and have no objection if it is a few degrees lower than that. One of these beekeepers who favors a low temperature, winters his bees in three different cellars, and he has any amount of ventilation, with temperatures getting as low as freezing at times if I understand him right, and yet he says he rarely loses a colony unless by mice getting in. Some of these bees are never looked at from the time they are put in till they are taken out. This man is one of our most extensive producers in Ontario, having had about two carloads of honey from clover this past year. He says that, with the high temperatures advised by some authorities, he would lose two-thirds of his bees. I do not know who is right; but I am quite sure that the present cellar I am using would be better with more fresh air coming in, and I am not sure but that an improvement would be noticeable if it was a few degrees warmer.

Dealers in supplies and bees report a very keen demand for spring delivery—especially so in regard to bees. But bees seem rather hard to pick up here in Ontario, doubtless due to so many beginners entering the game. As to getting bees from the South, just now Uncle Sam does not seem to want our money, and with discounts ranging around 15 per cent or higher it is a serious handicap to the persons getting bees from over the line.

Sugar has advanced $2.50 a hundred wholesale, and it is now quoted at Toronto at $14.71. J. L. Byer.

Markham, Ont.

In North Carolina.

The North Carolina Beekeepers' Association, in session in Greensboro Jan. 9 and 10, received with enthusiastic approval a suggestion by Franklin Sherman, State Entomologist and retiring president of the association, that plans be launched for making the 1922 session of the State Association a great Beekeepers' Conference for the whole Southeastern section of the country, to include Virginia, Tennessee, South Carolina, Georgia, Florida, Alabama, Louisiana, and possibly Texas. It is planned to hold the sessions in Charlotte, a North Carolina city with railroad and hotel facilities that peculiarly adapt this point for the convenient and economical assembling of such a conference. The plan is to include not only the leading beekeepers of this State and of the Southern States, but also to secure the attendance of authorities in beekeeping from the North and West as well, such as Dr. E. F. Phillips, apiculturist for the United States Government, Editor E. R. Root of Gleanings in Bee Culture, and others. There is every indication now that the North Carolina beekeepers will undertake to get together such a conference of beekeepers, the State Association being now in quite a flourishing condition.

The attendance at the State convention at Greensboro was especially large, with many of the smaller "back lot" beekeepers as well as the commercial end of the business attending. An entirely new staff of officers was chosen for the next year, headed by J. M. Gibbs, Reidsville, as president. The other officers include W. W. King, Wilmington, vice-president; J. E. Echert, Raleigh, secretary-treasurer; R. W. Ethridge of Selma and W. D. Monroe of Chadbourn, members of the executive committee, along with the officers previously named as directors ex officio.

E. L. Kirkham, extensive beekeeper of Washington, N. C., caught the attention and special interest of the convention in a presentation of a well-thought-out plan for co-operative buying of supplies and for the sale of bee products. While some thought the State to be scarcely developed sufficiently in bee culture to justify a state-wide co-operative organization that could be operated economically, the association voted to instruct the new executive committee to investigate carefully and make report with recommendations to the next annual convention, which will probably be held either at Goldsboro, Wilmington, or Washington, N. C,. the eastern beekeepers being entitled to have the next convention in their part of the State. The executive committee selects the time and the place, the time, of course, to be, as usual, early in January.

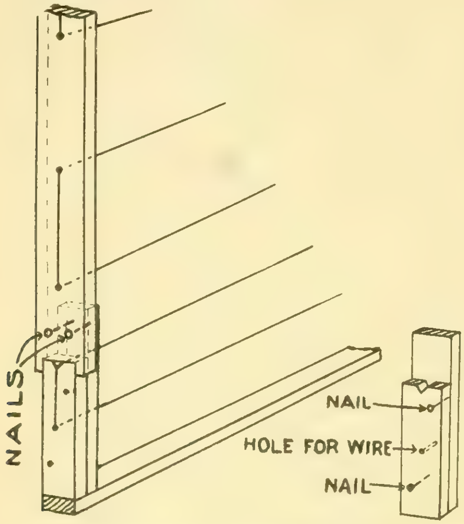
The convention received quite favorably a suggestion by Franklin Sherman, retiring president, that there be a midsummer special meeting of the Association at some convenient point in the Western Carolina mountains, Asheville, Hendersonville, or some other easily accessible mountain resort where business and pleasure can be most happily blended in the program.

North Carolina now has nearly 200,000 colonies of bees, with the percentage of those represented in the membership of the State Beekeepers' Association constantly increasing; and the application of improved methods of bee culture is also constantly on the increase. W. J. Martin,

Wilmington, N. C.

HEADS OF GRAIN FROM DIFFERENT FIELDS

To Convert a Hoffman into a Jumbo Frame. Take two sticks of wood ¾ x ⅜, and one 2⅛ and the other 3 inches long. Make a V-shaped cut in shorter piece as shown in the cut. Nail them together. Pierce two holes, one at the bottom of the V-shaped cut thru the longer piece, and the other thru both pieces midway down. To set in place, take the bottom-bar off the frame. Adjust a block in each groove, with the longer piece turned in, which will give a smooth surface outside, driving two nails in each. Replace the bottom-bar. Wire the added piece thru the holes previously made, and imbed a two-inch piece of foundation in wires extending ¼ inch above the upper wire, which the bees will connect in a short time. The end piece may be made of one piece, which any supply house will furnish on order. It will be necessary to have a rim for the hives 2⅛ inches deep for either single or double-walled hives.



Showing the extension piece separate and after being attached to the end-bar.

If it is desired to have 1½-inch spacing instead of 1⅜, take a metal spacer and divide it in halves. Nail them on the frame on opposite diagonal corners, which will give nine frames to a ten-frame hive.

Medina, O. J. E. Thompson.

* * *

Need of Repellent Sprays. Some years ago I insisted that a repellent of some kind should be added to spray material so that poisoned blossoms would not be visited by bees, and possibly poisoned branches and sods under trees would not be molested by cattle, sheep, or poultry. The effort to ignore the spray-poison question is not solving the question at all in the interest of beekeeping. A good, loud, healthy roar from the beekeepers would set our experiment stations to work to find the remedy needed. The clover-honey flow has sharply declined with the advent of spraying, and there is not yet as thoro spraying as there will be in the future. My beekeeping has been at a standstill for several years, due to the uncertainty of both the crop and the business itself. The orchard business, however, is growing extensively. In fact, the man who can not produce one or two or more cars of apples is not considered in the business. A proper repellent added to or instead of poison, when proved successful and when required of the orchardist, would greatly benefit beekeeping. C. H. Cargo.

Bladen, O.

* * *

Fowler's Reply to Dr. Miller. Let Dr. Miller read, on page 19, lines 3 and 4 of my article, "I hope to prove that to let the drones take care of themselves is a fallacy;" and then read in his article of June, middle of last column, page 369, "'Well, if we are not to rear drones from the best queen, what are we to do about drones? **Don't do anything.**" He will then see that I was simply trying to prove to him by figures that to **do nothing about the drones** is a fallacy.

My mind is still at sea to know how the Doctor or anyone else can "**breed from the best**" and "**don't do anything**" about the drones. C. E. Fowler.

Hammonton, N. J.

* * *

Keeps His Bees in the Attic. I am a beginner with a year's experience, but I feel that I have been fairly successful, as I obtained last year 100 pounds of surplus from two hives in a year of almost total failure for the vicinity of Portland. I divided one hive in August for increase, and these are my very best colonies this year, due to young queens and stimulative feeding to increase brood-rearing. We had an ideal spring in 1919. On April 15 one hive had 12 frames of brood and the others 8 and 10, and I secured 35 pounds of surplus from fruit blossom from the three colonies, and increased to four strong colonies.

I like fall division for this locality, after the main crop; and as we have only a slight fall flow—just enough to build up colonies, running to the first of October—they build up nicely for winter with the help of a quart of thin syrup.

My apiary of four hives is in my attic and third-story room, owing to lack of yard space. Next year I expect to start an out-apiary. While single-walled hives are suf-

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ficient here. I like the chaff hive and am using it. That is why I secured my surplus from fruit this year, as my colonies built up early. A. E. Meserve.

Portland, Ore.

* * *

A Side-line City Beekeeper I am a side-line beekeeper and take a great deal of pleasure in the work, as I find it fills in admirably with my professional work as a veterinarian. The industry has received a setback in this valley, during the last ten years, by the advent of the alfalfa weevil; but sweet clover is gaining in popularity here and, no doubt, will be followed by an increase in honey production.

Mr. Philpott's back-lot apiary.

I have 25 colonies on my lot here, only one block from the main street, and have never had any complaints come to me for keeping them.

The stump hive.

The stump shown in the illustration is a section out of a poplar tree, in which a swarm of my bees took up quarters a year ago last summer. I cut the tree down in December during an extremely cold spell, without trouble or injury to the bees, judging from the activity they showed last Sunday. L. B. Philpott.

Provo, Utah.

Hives in the Philpott apiary.

* * *

Thermometers for Bee Cellars. Mr. Byer, in January Gleanings, has done beekeepers a favor by calling attention to inaccurate thermometers, as, no doubt, some cellar-wintering failures have been due solely to a higher or lower temperature than indicated by the thermometer used.

The writer has had occasion to test thermometers more or less every year for more than 20 years, and has quite frequently found some that vary 3 to 4 degrees at some points of the scale. A thermometer may register perfectly accurately at 32 degrees and at 212 degrees, and still be wrong to the extent of 3 or 4 degrees at some intermediate points of the scale. So the freezing-point test, mentioned by Mr. Byer, only establishes **one** point on the scale, which might be correct when most of the other points on the same scale are wrong.

The accuracy of a thermometer thruout its length depends mainly on uniformity of diameter of the bore. It requires great skill to draw out a glass tube and leave a perfectly uniform internal diameter. A glass-blower who is very expert at the work draws high wages and is not commonly employed on the cheaper grades of thermometers. Yet only those thermometers accurate between 40 degrees and 50 degrees Fahr. are safe for determining cellar temperatures.

Lansing, Mich. A. N. Clark.

[Gleanings has been trying to obtain a certified thermometer for degrees between 40 and 50—not with the idea of making any money but as an accommodation to those who, having the welfare of hundreds of colonies at stake, need accuracy to the frac-

HEADS OF GRAIN FROM DIFFERENT FIELDS

tional part of a degree. Spirit thermometers, that is, those having red liquid instead of mercury, are apt to be very inaccurate, and even high-grade mercury thermometers may vary as much as a degree. The certified thermometers for the whole scale, as our correspondent says, are altogether too expensive. We hope, in an early issue, to make some announcement of a reliable instrument for 40 to 50 degrees.—Editor.]

* * *

Pays to Study Beekeeping. I am enclosing a picture that I took of my apiary last summer. The sixth hive from the left produced 300 pounds of extracted honey, and the average was over 100 pounds. Half was comb honey, and those that I run for extracted were supplied with foundation only. This is a prairie country, with the fields mostly of corn and oats. Several neighbors got no honey from their bees. I think it pays to study bee culture, if one intends keeping bees at all.

Lohrville, Ia. Chas. L. Ruschill.

* * *

Wintering Well in Zero Weather. There are very few regular beemen in this county. Colonies here are strong on increase rather than on production of honey. Several Idaho parties buy up stands here and send them to that State where the yield of honey is better. I am told that out of 200 colonies Inspector Johnson, living near Boise, Ida., has only 60 remaining colonies, the loss being caused by improper spraying in his section. The year 1919 was a good year for honey in Washington County, the scattered beekeepers securing 25 to 35 cents per pound, in pound carton or box. Tho we had 20 degrees below zero, my bees have wintered well so far, with very little loss. This extreme weather came as a surprise, since this is so mild a climate that we use no packing. A water-proof cover or long shed is the usual plan. I expect to sell my increase to more unfortunate beekeepers, and have been offered splendid prices. If we can't produce the honey in sufficient quantities, we can supply the bees in proper shape to ship to the place where they can produce in paying amounts. Fred A. Everett.

Hillsboro, Ore.

* * *

Disastrous Bee Year in Australia. As I predicted some time ago would be the case, this season has proved a complete failure in Australia, and in some localities it has proved a disaster. Many apiaries perished of sheer starvation. In my locality, which is nearly 500 miles west from Sydney, there are practically no bees to be found. They all perished of starvation and want of water.

The greatest pest of Australia—rabbits—died out in this district, tho two years ago there were millions of them here, and they were multiplying with alarming rapidity. Cattle, horses, and sheep are perishing by the thousands, and the country lies parched and barren. There is not a blade of grass nor a weed to be found in hundreds of miles here, so you can picture what times beekeepers are having here now.

I have a little orchard under irrigation; and, altho it is in a very sad condition now for want of water, the green is still there, and it served as an attraction to starved beasts of the bush. Here they come in thousands as soon as drouth begins to be felt.

There is a 300 pound surplus colony in this Iowa apiary

HEADS OF GRAIN FROM DIFFERENT FIELDS

in the hope, of course, of having a feed. Birds, ants, and beetles found no difficulty in achieving their object; but the rabbits encountered wire netting, and, incredible as it may appear, they started to grind the wire with their teeth, and in a few nights succeeded in making a few holes in the fence.

The ants are real pests here at any time; but this year they are a real menace in orchard and beeyard, in the house, kitchen, and even in a bedroom. Some of them sting, and their sting is more painful than that of a bee. Some discharge a fluid with a sickening smell, so that if they once interfere with food they render it uneatable. This season the ants took possession of our scanty bee pastures, and so there was nothing left for the poor bees but to perish. The ants would take nectar out of blossoms even before the blossoms were opened sufficiently for the bees to enter, either by eating a hole in a bud or by entering the bud thru extremely small openings in the foldings of the bud. A bee never dares enter a blossom already monopolized by ants. If it does, it will be most savagely attacked and destroyed. Yet the bee **can** live here; it can survive the drouth with a little help, and pay handsomely in good seasons. So the A B C and X Y Z of Bee Culture is right in its opinion that "bees can live wherever human beings can." T. Volkofsky.

Mount Boppy, N. S. W., Australia, Dec. 26, 1919.

◆

Unusual Disappearance of Queens. On page 800 of December Gleanings, Ed. W. Frisby asks what could have caused the strange disappearance of his queens. I think, perhaps, I may be able to throw a little light on this subject. Since Mr. Frisby said the only way he could requeen was to buy queens, he evidently lives in a locality where there are lots of bee-eating birds, and, as the queens fly slowly and steadily, they are easily caught by these bee-birds, and thus the young queens when out to be mated are lost in their flight. On the other hand the queens he bought were mostly mated and, therefore, never exposed themselves to the bee-birds.

Millston, Wis. Otto Scholze.

[While this does not explain the loss of mated queens, it seems a very plausible explanation of the loss of virgins.—Editor.]

High Prices.—By Bill Mellvir

(With apologies to Walt Mason.)

Now all day long I cuss or weep, because the prices are so steep; for when I linger in a store, the way they rob me makes me sore. And when I order bee supplies I'm stung by profiteering guys, who should be dangling from a rope and forced to give away their dope. I need some supers and some hives, some frames and extra honey-knives; some comb foundation and some wire, a pencil and a brand-new lyre. I need a smoker and a veil; I need a hammer and a nail. I need some movies on the screen, some tires and some gasoline. But all these things I can not buy, because the prices are so high. The only way to stop my tears would be to lynch the profiteers. But for the things I have to sell, I have another tale to tell, which illustrates the other side and can not justly be denied. I have some beeyards hereabouts. My high-brow bees are noble scouts. They spring each year great tanks of sweets, which I am selling on the streets. And when on buoyant legs I go, to sell a fragrant ton or so of bee-kissed honey, by the tierce, the price I get is something fierce. And when a customer would kick and fire at me a high-priced brick, I give convincing reasons why my prices penetrate the sky. The clover on my neighbors' farms on high-priced ground now spreads its charms. It grew from many high-priced seeds right in among expensive weeds. Some days the nectar in this bloom comes oozing out to get some room. My high-priced bees, with high-priced zeal, go forth and all this nectar steal. On gleeful wings they tote it home to mow away in high-priced comb. Then when it's ready to extract, and in expensive cans be packed, my high-priced time demands its share, which leaves for profit naught but tare.

TALKS TO BEGINNERS

By Iona Fowls

Having last month made definite arrangements for the purchase of the colony or colonies of bees, the necessary beekeeping supplies should now be ordered in readiness for the arrival of the colonies of bees, unless by good fortune the bees and the supplies have both been purchased of a nearby beekeeper. Later in the spring shipments are bound to be delayed, and therefore it will be the part of wisdom to place one's order immediately, if purchase has to be made of a beekeepers' supply house.

Books and Magazines.

Those who are really interested in bees will begin their list of supplies with some of the best bee books now on the market and will also subscribe for at least one of the leading bee journals. The beekeepers' supply catalog with its generous illustrations will also give a fund of information; but it is hardly necessary to advise the enthusiastic beginner to obtain all the information possible concerning bees, for he will not only read all he can find on the subject, but will also supplement this by most enlightening visits with neighboring beekeepers.

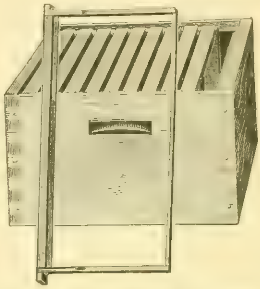
Making the Choice, Comb Honey or Extracted?

The honey which the bees produce in excess of their winter needs is called surplus honey. This may be stored in small boxes called sections, which hold about one pound of honey each and are sold with the honey; or it may be stored in frames holding from three to six pounds, the honey being cut out and sold as chunk honey or extracted from the combs and the same frames of combs used repeatedly year after year. The honey produced in the sections is called comb honey, and that extracted from the combs is called extracted honey.

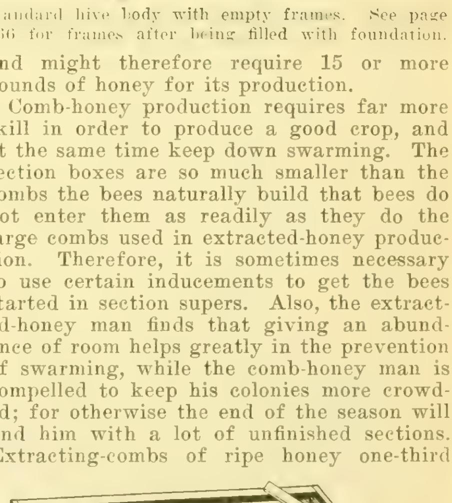
Now at the very outset it will be necessary to decide whether to produce comb honey or extracted, for, as just explained, the equipment in the two cases will differ. There are several good reasons why the average beginner will find it to his advantage to produce extracted rather than comb honey.

For the first year, the comb and the extracted-honey outfits do not differ materially in price, except for the extractor; but in succeeding years the advantage is all in favor of the extracted-honey outfit; for the same combs in which the bees store honey the first year may be used repeatedly year after year, while the sections of foundation in which comb honey is stored must be replaced at considerable cost every season.

Comb is made of wax, which is a secretion from certain glands of the bees; and for the production of a pound of wax it is probably necessary for the bees to consume from five to fifteen pounds of honey, which might otherwise be sold as surplus. Therefore, besides the extra cost of supplies the beekeeper loses considerably from the fact that bees run for comb honey are compelled each year to build all the comb in which they store their surplus honey. Such comb would quite likely contain as much as three pounds of wax and might therefore require 15 or more pounds of honey for its production.


Standard hive body with empty frames. See page 166 for frames after being filled with foundation.

Comb-honey production requires far more skill in order to produce a good crop, and at the same time keep down swarming. The section boxes are so much smaller than the combs the bees naturally build that bees do not enter them as readily as they do the large combs used in extracted-honey production. Therefore, it is sometimes necessary to use certain inducements to get the bees started in section supers. Also, the extracted-honey man finds that giving an abundance of room helps greatly in the prevention of swarming, while the comb-honey man is compelled to keep his colonies more crowded; for otherwise the end of the season will find him with a lot of unfinished sections. Extracting-combs of ripe honey one-third or more unsealed will, when extracted, result in first-class honey. Sections one-third sealed must be sold at a low price.


Comb-honey super and sections.

Furthermore, extracted honey may be produced in many localities and in many seasons when comb honey would be an absolute failure; for, in order that any quantity of comb be built, it is necessary that the nights be warm, as it is during the warm nights that most of the wax is secreted and the combs built.

Oftentimes a beginner is able to find a larger beekeeper in his own locality who will be willing to do his extracting for a small sum. We have found that even one cent a pound is a good bargain on both sides. If one prefers the fun of doing his own extracting (and there is a real pleasure in it), he will be able to purchase a two-frame extractor at a moderate price. And this size will be quite large enough for some time to come. And when he later decides to go into the business a little heavier it will, doubtless, be possible to sell the small extractor and purchase a larger one, either new or second-hand.

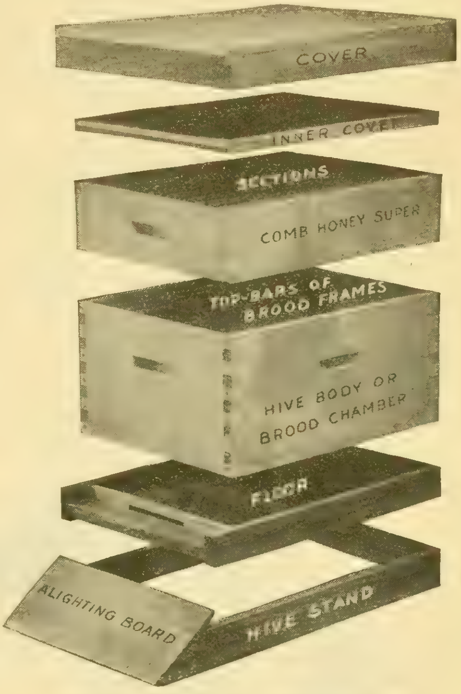
We advise, therefore, that the beginner use extracting-combs rather than sections, and produce either chunk honey or preferably extracted. For the sake of those, however, who greatly prefer comb honey and find a keen delight in the beauty of the snow-white section just as it comes from the hive, we intend describing the outfit for comb as well as extracted honey and in a later issue the management necessary for the production of both.

Outfit for Extracted Honey.

For extracted-honey production the smallest practical outfit should consist of a complete hive with fixtures and supers—a bee-brush, bee-hat, smoker, hive-tool, queen-excluder, bee-escape board, uncapping-knife, and a honey-extractor. This provides for only one colony of bees. It would be distinctly to the beginner's advantage to double or triple the number of bee-escape boards, queen-excluders, supers, and hives with contained fixtures; for with two or three colonies he would have a chance for comparison, and, we believe, would learn beekeeping much faster.

A single-walled hive exactly identical with the deep super may be used, but in this case it will be necessary to provide also a winter packing case if the colony is to be wintered outside. Therefore we consider the double-walled hive much more practical for the beginner, and, accordingly, recommend the double-walled ten-frame hive equipped with ten frames containing full sheets of foundation, metal telescope cover, inner case, chaff tray, division-board, bottom-board, entrance-closer, two or three deep or four or five shallow supers furnished with frames containing full sheets of foundation. The hive body, or lower story of the hive, rests immediately upon the floor-board which has at the front an entrance-contractor for regulating the size of the entrance. At each upper end of this box or hive is a metal support, or rabbet, holding suspended lengthwise of the body ten movable Langstroth frames 9⅛ x 17⅝ inches in size. Inside of these frames, attached to the top-bar by means of wax and supported by fine wires, are full sheets of foundation, or beeswax stamped with an impression of the natural base and central walls of honeycomb. During the honey flow, or while the bees are being fed, new wax is added to these shallow walls, and the foundation built out into comb for storing honey and raising young bees. Here in this lower hive or lower story, called the brood-chamber, all the young bees are raised, the queen usually being allowed to lay eggs only in this story.

As soon as the bees seem to need more room there is placed above the brood-chamber a queen-excluder, which is an arrangement of perforated zinc or of wire rods, which allows the worker bees to pass freely back and forth between the lower and the upper chambers, but excludes the queen from the upper story on account of her larger size. When producing extracted honey this excluder is necessary in order to keep the queen from laying in the supers or upper stories that contain the surplus honey. A few beekeepers allow the queen access to any or all of the supers, but we can not recommend this; for, besides the extra trouble and inconvenience, the practice also results in a poorer grade of honey.



Parts of single-walled comb-honey hive.

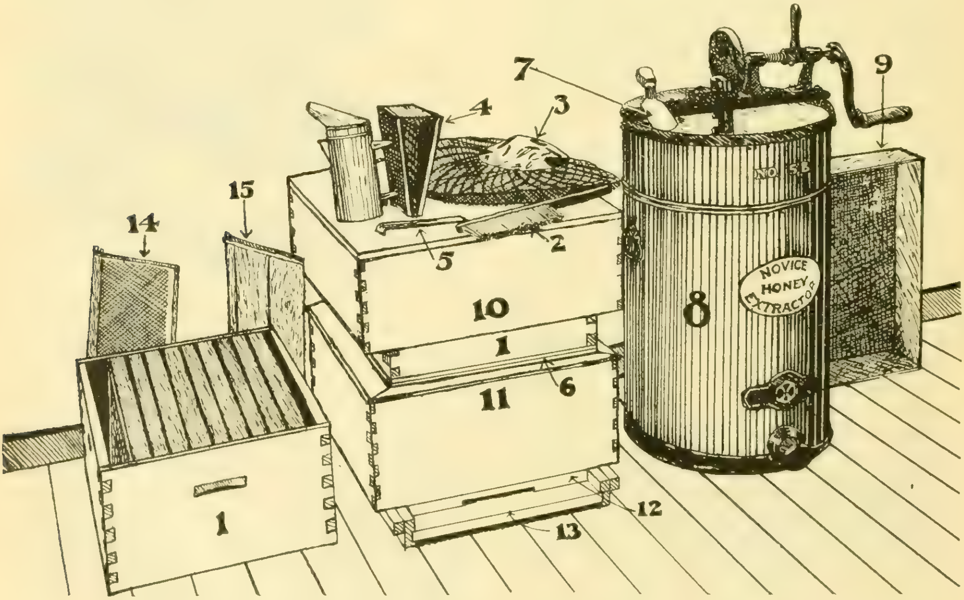
Over the queen-excluder is placed the super filled with frames of foundation. The super is a plain dovetailed box without top or bottom. The inside dimensions may be the same as that of the lower double-walled brood-chamber, or it may be shallower. Some prefer shallow rather than deep supers, as they are lighter, more easily handled, less liable to breakage when extracting, may be put on early in the spring with less loss of heat from the brood, and make it possible to keep separate, in different supers, different flows of honeys varying in color and flavor, such as clover and buckwheat. Some advocate deep supers so that all the frames in the hive will be interchangeable, which is certainly a handy arrangement. Others compromise by having one deep super for each hive and two or three shallow ones. This arrangement makes it possible to give the queen access to two stories when desired, and yet retain most of the advantages of shallow supers. Over the super is placed a thin inner cover, or early in the season when no super is being used this cover is placed just above the brood-chamber. Above this is the large telescoping cover. The chaff tray, which is to be filled with leaves and placed over the colony during the winter, and the tight-fitting division-board, that is slightly larger than an ordinary frame but may be suspended in the hive in the same way as a frame when contracting the colony for winter, will not be needed during the summer and may be stored away until ready to pack the bees for winter. It would hardly pay for the beginner to buy the division-board since he could easily make one himself. It may be of thin wood and should be made to fit the hive tightly so that bees cannot pass beyond it.

Outfit for Comb-honey Producers.

The equipment for the production of comb honey is just the same as the one given for extracted-honey production except the uncapping-knife, queen-excluder, and extractor. Also, instead of the extracting-supers, three or four comb-honey supers filled with sections containing full sheets of foundation will be needed. There are several styles of sections, but we recommend either the 4¼ x 4¼ x 1⅞ beeway section super or the 4 x 5 x 1⅜ plain section super. The sections of the latter super instead of being square are rectangular, are a little more artistic in looks, and appear to hold a little more honey than they really do. For these reasons they are preferred by many.

A Few Suggestions.

These outfits give all that is absolutely necessary, but it would be a good plan to have an extra hive on hand to use in case of any possible swarm. One or two extra supers with included fixtures may also come in handy. The first hive should be purchased nailed and painted (designated NP in the catalogs). With this for a pattern one may later enjoy nailing up his own supplies, in which case he may then purchase somewhat cheaper by buying in the flat or knocked down (KD). As a last word of caution we urge that the supplies be ordered immediately in order to avoid probable later delays.



EXTRACTED-HONEY OUTFIT

1, Extracted-honey super; 2, bee-brush; 3, bee-hat and veil; 4, smoker; 5, hive-tool; 6, queen-excluder; 7, honey-knife; 8, extractor; 9, tray for winter packing; 10, telescope cover; 11, double-walled hive; 12, entrance-closer; 13, bottom-board; 14, frame of foundation; 15, tight-fitting division-board; 16, inner cover over (1) but not shown in cut.

BEES, MEN AND THINGS

(You may find it here)

I HAVE been reading in the A B C and X Y Z of Bee Culture the articles on tupelo gum honey of Florida. We have the same conditions here in southeast Texas. The banks of the Neches River are lined on either side with both the white and black tupelo gum. This timber is from one to two miles thick. Would not the source of nectar be as good here as in Florida? I have not had time to test the possibilities of it yet. I started the year with one colony and have built up to 25 strong colonies for spring. The bees start to working here in February and March if the weather is right.—Wm. Meador, Jefferson County, Tex.

''I used to have two or three thermometers hanging side by side. Sometimes one would read highest and sometimes the other. This is, no doubt, caused by the tubes not being the same at different places. That being the case two thermometers might agree at zero or at 32 degrees and might read several degrees different about 45 and 50.''—Geo. M. Thomson, Greene County, Ia.

''But now we have to acknowledge that the season is an almost total failure on account of the prolonged severe drought. Bees have found no flowers and in consequence could gather but little honey. The wax has suffered equally, and arrivals are very insignificant and the quality is almost invariably poor.''—Cuba Export Company, Santiago de Cuba, Jan. 23.

''I have found that 'bait sections' will produce just as good-looking comb honey, and with as nice cappings as any other, if you pass a knife over the cells and scrape down the comb about halfway to the midrib. This is done best in frosty or cool weather while the wax is brittle. It leaves the sections cleaner than to melt the cells down by a hot iron plate, as some have reported doing. Try it on a section one of these cold mornings.''—G. A. Pauli, Otero County, Colo.

''Carniolan tested queens; price, $2.00. Jan Strgar, Queen Raiser, Bitnje, J. Bohinska Bistrica (S. H. S.) Stete of Serbs, Croats, Slovenes, Carniola, Europa.'' — Francis Jager, Hennepin County, Minn. [Gleanings knows nothing of Jan Strgar, but prints this notice sent by Prof. Jager, as an answer to many inquiring as to where Carniolan queens can be secured. We assume no responsibility as to this information.—Editor.]

''I remember long ago in Ireland that the chief inspector, Mr. T. B. O'Brien, told me that the best beekeeper he ever saw was a blind man. He used to relate how this blind man once went out with him to look at a strong stock. The minute he had the cover off, the blind man said, ''They have swarmed without my knowing it.'' O'Brien was astonished, as the quilt had not yet been taken off the top of the frames. The blind man explained that he knew by the loss of heat that the swarm was gone. I correspond regularly with a blinded soldier whose eyes were shot out. He has been taught carpentry and chicken farming. And he writes me that he defies any carpenter to do better work. We all know that fineness of touch is a great acquisition in beekeeping, which probably accounts for women being better than men at it. Therefore the blind man whose touch becomes tremendously developed should make a very good beekeeper.''—Will H. Gray, British Columbia.

''I am looking for American foul brood next season in greater quantity than last season. I find after a hard winter it seems to show itself more. New Jersey is having quite a stir over the disappearing disease. Coley and myself attended their meeting at Trenton recently. They are a wideawake association.''—E. Vanderwerken, Fairfield County, Conn.

''The census taker was here today, and judging from the way he took census of me, it would seem that beekeeping is in for a pretty raw deal at the hands of our census takers. He merely asked me my name, age, where born, where father and mother were born, whether married or single, and occupation, and that was all he wanted to know. He declined to take any notes on property, real or personal, that I might own, number of colonies of bees I have, income from my business, or anything about it. He is getting all the statistics possible about farming, poultry-raising, etc., but says he has no form on which to take statistics in regard to the bee business. So far as I know, the beemen of the country will appear on the census rolls as a lot of men without any property of any kind, not even a colony of bees, no income, and, to all intents and purposes, paupers.''—H. D. Murray, Red River County, Tex.

''The Stroller notes that would-be purchasers of bees are very numerous; that many are trying to break into the game; that any old bee in any old box commands a price; that twenty dollars per in a good hive finds customers; that it is reported 70 per cent of the honey in Washington is still in the hands of producers; that the price is no higher notwithstanding the advance in sugar; that here it takes more honey to spring the bees than it does to winter them; that abundance of honey in the hive after winter means extra strong colonies.''—E. J. Ladd, King County, Wash.

JUST NEWS

Editors

A WIRE report to Gleanings, dated at Los Angeles, Feb. 21, reported rains had been general thruout California for two days and were still continuing, bringing the total rainfall to that date above the rainfall of last year but still below normal in most localities. The prospects for a sage honey crop are greatly improved by these welcome rains.

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The 31st annual meeting of the Pennsylvania Beekeepers' Association, which was held at Harrisburg on Jan. 21, was one of the most interesting and profitable meetings of beekeepers ever held in that State. Prof. H. C. Klinger of Liverpool, Pa., and Charles N. Greene, Apiary Advisor for Pennsylvania, were re-elected as president and as secretary-treasurer, respectively.

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The British Columbia honey crop for 1919 is officially estimated at 172 tons, which brought an average price of 29c per lb.

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The Inland Empire Beekeepers' Association recently held a meeting at Davenport, Wash., and elected Geo. W. York of Spokane, president; Mrs. J. E. Thompson of Coeur d'Alene, secretary-treasurer.

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The new officers of the Western New York Honey Producers' Association are: Wm. F. Vollmer, Akron, president; J. Roy Lincoln, 1802 Ontario Ave., Niagara Falls, secretary-treasurer.

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The officers of the Kansas State Beekeepers' Association elected at the annual meeting held in January are: O. A. Keene of Topeka, president; O. F. Whitney of Topeka, secretary.

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The newly-elected officers of the Illinois State Beekeepers' Association are: Dr. A. C. Baxter of Springfield, president; G. M. Withrow of Mechanicsburg, secretary; Geo. Seastream of Pawnee, treasurer. James A. Stone, who for 29 years has been the secretary of the Illinois association, was unanimously elected an honorary life member.

* * *

The program of the National Beekeepers' Association's annual meeting to be held at the Statler Hotel, Buffalo, N. Y., on March 9, 10, and 11, so far as completed, is as follows: March 9, 1 p. m.—Annual address of the President, B. F. Kindig; ''Beekeeping as a Business,'' Colin P. Campbell; ''Marketing to increase Sales,'' R. F. Holtermann; appointment of committees. March 10, 9:30 a. m.—''Modern Methods in Comb Honey Production,'' E. S. Miller; ''Nationwide Co-operation from the Manufacturers' Viewpoint,'' Kennith Hawkins; ''Confidence - Co - operation-Life,'' C. F. Muth; report of committees. March 10, 1 p. m.—Address by C. P. Dadant; ''Organization in Iowa,'' Prof. F. B. Paddock; ''Proper Packing of Honey for Shipment,'' J. A. Warren; ''European Foul Brood Control as Modified by the Time of the Honey Flow,'' Dr. E. F. Phillips; general business session and election of officers. March 11, 9:30 a. m.—''The Grading of Honey,'' Frank Rauchfuss; ''A Survey of Beekeeping in Iowa,'' Prof. E. W. Atkins; ''Our National Problems and How to Solve Them,'' Prof. Geo. H. Rea.

* * *

The 31st annual meeting of the California State Beekeepers' Association was held Feb. 6th and 7th at the Auditorium in Exposition Park, Los Angeles. The officers elected were: J. E. Pleasants of Orange, president; M. H. Mendelson of Ventura, vice-president, and A. B. Shaffer of Los Angeles, secretary-treasurer. The executive committee: R. Powell, Riverside; Edward Fisher, Burbank, and Roy K. Bishop of Santa Ana.

* * *

The New York State Association of Beekeepers' Societies met in annual convention at the Joseph Slocum College of Agriculture, Syracuse University, Syracuse, N. Y., on Feb. 2 and 3. O. L. Hershiser, Kenmore, N. Y., was re-elected president; and J. H. Cunningham of the University, secretary. About 200 beekeeper members were in attendance, some 30 or 40 of whom were delegates of affiliated beekeepers' associations; and the attendance included representation from nearly every honey-producing locality in the State. A committee of five was selected to attend the convention of the National Beekeepers' Association, which convenes at the Statler Hotel, Buffalo, on March 9 for the purpose of receiving and acting on information relating to the newly-organized American Honey Producers' League. Pursuant to an overwhelming vote by the delegates to incorporate the association under the New York State incorporation law, incorporation papers were prepared, and it is expected that with the completion of the incorporation and with the powers and privileges thus secured, all New York State Beekeepers soon will be enjoying the long-sought benefits of obtaining their bee supplies at greatly reduced rates and being able to secure greatly increased profits that will come from a better and easier distribution of their honey. It was decided to hold the annual summer meeting and basket picnic on the first Tuesday of August at the home and apiary of W. L. Coggshall at Groton, N. Y.

GLEANED BY ASKING

Iona Fowls

Questions.—(1) We are wintering some Italian bees in a Buckeye hive up here, 8,000 feet above sea level, and there is lots of activity in and around the hive on warm, sunny days; but a good many bees are dead outside the hive entrance, and the floor of the hive near the entrance, as well as the floor of the room directly in front of and below the hive entrance, is covered with a powdery substance. Has this substance any connection with the death of the bees? (2) When would it be safe to open and go thru the hive?

Wyoming. C. M. Cosby.

Answers.—(1) At this time of the year on warm days it is natural that the bees should fly from the hives and some perish. These are old bees that would not survive the winter anyway. The powdery substance on the floor of the hive and also at the entrance need cause no worry on your part. This powder is made up mostly of particles of wax from the cappings. On warm days in the spring you will often notice bees carrying this out at the entrance. (2) During the winter the colony should not be disturbed, but in the spring as soon as it is warm enough for the bees to fly freely the hive may be opened and an examination made.

Questions.—(1) Is it advisable to combine two weak colonies? Please explain the operation in detail. (2) When there are more queens than one in a hive, should all but one be removed? Please explain the process and when to look for them. (3) Explain in detail the use of queen-catchers.

New York. William L. Hughey.

Answers.—(1) During winter it would not be good beekeeping practice to unite colonies, for, of course, they should not be handled at all during very cold weather; but in the spring weak colonies may be easily united by placing the brood-chamber holding the combs and bees of the one colony immediately over the brood-chamber of the one with which it is to be united, having only one thickness of newspaper between the two supers. The bees will soon gnaw thru the newspaper and unite peaceably. (2) During the swarming season when colonies sometimes start a great many queen-cells, the various colonies in the yards should be examined at frequent intervals of a week or so to make certain that no young queens are hatching. For, if the colonies are neglected at this time and allowed to raise as many queens as they choose, the result will be that swarms will issue. Except at swarming time, there would be no danger of having more than one queen in one hive unless the queen became, in some way, defective and the colony should attempt to supersede or replace her with a young queen. In such a case, however, you would not wish to remove a second queen. For, in cases of supersedure, the two queens will usually live together peaceably in the new hive until the death of the old queen. (3) When a swarm issues from a hive it is accompanied by the old queen. The bees, together with the queen, in case she has not been clipped, then cluster near, and when the cluster has become quiet, the beekeeper may, by means of a swarm-catcher (which is simply a basket or other receptacle on the end of a pole) capture the swarm by shaking them into the swarm-catcher and then jolting them down in front of the new hive in which they are to be housed.

Question.—How is the best way to introduce queens to bees bought in pound packages?

Utah. Dewey S. Olson.

Answer.—When buying pound packages, the queens are purchased separately. If the buyer so requests, the queens will be introduced before sending. We know of two queen-breeders who introduce the queens by simply shaking the bees into the package and then half an hour later immerse the caged queen in lukewarm water, give the bees another shake, and run the queen into the package of bees.

Question.—How can fruit trees be sprayed effectively without killing bees? Jas. Kirkland.

Pennsylvania.

Answer.—If the trees are sprayed while in full bloom, the delicate reproductive organs of the flowers are injured and the bees are poisoned by the spray. Sometimes much brood is killed; at other times entire colonies perish. The spraying should never be done while the trees are in bloom. We will be glad to send you free a booklet entitled ''Bees and Fruit,'' that you can show your fruit-growing neighbors to convince them that they should never spray while their trees are in blossom and that bees are of great service to fruit orchards. We will also send to beekeepers, who write and ask for them, printed post cards headed ''Don't Kill the Bees.'' These can be mailed out to the beekeepers' fruit-growing neighbors. These post cards explain to the fruit-grower the value of bees to fruit and when to spray so as not to poison the bees. The post card kindly requests the fruit-grower not to spray his trees while in bloom. State the number of such post cards wanted.

Question.—Can you advise me as to how you prevent your honey from candying in the glass?

New York. H. C. Mills.

Answer.—There is no way to prevent honey from granulating. There is a great difference in honey in this respect, some granulating in less than a week. A few other kinds remain liquid for long periods, years in some cases. We advise that if the honey is heated properly at the time of bottling, it will remain liquid a much longer time. Some beekeepers when selling their honey agree to replace any that may granulate in the jars while in the hands of the retailers. The grocer is a little more apt to purchase with this guarantee, and yet the honey sells so well that there are really very few times when the beekeeper needs to fulfill this promise.

Questions.—(1) I found out that my bees have American foul brood, but did not know it until after they were packed for winter. I have only 8 stands and I intend to move them a distance of 40 miles in the spring. I want to transfer them by the Wm. McEvoy plan. I have over 500 extracting combs that have been exposed to foul brood. Should I burn the frames, or can I clean them? I want the safest and surest way. I have 50 new seven-wire queen-excluders; how can I clean them to make them safe to use again? (2) When would be the best time to transfer them? (3) I had thought to brush the bees out and take them to their new location about the last of May, then handle them about the same as two-pound packages from the South. Would this be all right? Joe Shaffer.

Ohio.

Answers.—(1) It is always somewhat cheaper for us to burn the frames than to attempt saving them. Yet, if one cares to go to the trouble the frames may be disinfected by hot steam. The queen-excluders may be disinfected the same as hives, by burning off the surface. (2) The best time to treat them would be in the spring at fruit-bloom time. If they do not obtain honey to keep them till the main honey flow, it will be necessary to feed them. (3) In the McEvoy treatment one set of frames of foundation is given, and then after the bees have drawn this out into comb, the comb is taken away from them and another set of foundation given them. Experience has shown that this is a great waste, and that it is unnecessary. The bees may be shaken and the pound packages taken to the new location and put on to the frames of foundation without spreading the disease.

Question.—(1) In my cellar there are a couple of hives in which the bees are making so much noise and trying so hard to get out that I have nailed a little wire screen on the entrance to keep them in, but they still feel uneasy. (2) I bought two swarms of bees last summer. One had a clipped queen. Will she be all right? She has only one wing. Will she get mated that way? Tony McNutt.

Wisconsin.

Answers.—(1) When colonies are put in the cellar the entrances should not be closed. If there are mice in the cellar and you fear they may enter the hives, we advise that you use a ⅜-inch mesh screen over the entrance. This will shut out the mice, but allow the bees to come out at the entrance if they desire. When bees are shut tightly in their hives so that they cannot leave, they become uneasy and raise the temperature of the hive, causing poor wintering and often dysentery and death. If the bees do not become quiet after the screen is removed, the chances are that your cellar is too warm. A temperature between 45 and 50 degrees Fahrenheit is just about right. (2) If the queen has the wings on one side clipped she is doubtless a laying queen, otherwise the beekeeper would not have clipped her wings. As you probably know, the wings do not grow out after they are clipped, so that during a lifetime a queen needs to be clipped only once. As queens always mate while on the wing, if a beginner should make a mistake and clip a queen that had not yet mated, the queen would be ruined since she would then be unable to mate.

Question.—Can you tell me how to make royal jelly for queen-cups without the bees making it for me? Chas. P. Johannigomier.

Illinois.

Answer.—There is no way that we know of for making royal jelly. Some beekeepers do not use royal jelly in grafting, but simply pick up a little food along with the young larvæ. Others make a colony queenless and allow them to start queen-cells, thus furnishing them with all the royal jelly they need for grafting.

ANSWERED BY E. R. ROOT.

Question.—Please explain the process of taking stings from bees, as I am thinking of engaging in the business. We have 10 colonies of bees with which we are raising (?) honey. Are the stings taken from live bees or are the stings of value taken from dead bees? Naturally, a novice in the business would prefer handling dead bees.

Wisconsin. Mrs. James Montgomery.

Bees' stings are used in large numbers by the Homeopathic school of medicine. We have ourselves filled several orders each for 10,000 stings. The stings are dropped into a vessel containing sugar of milk. They are afterward treated by a process that makes what is known as *Apis mellifica.* We stopped furnishing stings because it caused an itching sensation on the part of the employee who removed the stings. This was due to the fact that he inhaled the fumes of the poison. After he had pulled several thousand stings he would have to rest a while. The work was done as humanely as possible by crushing the bee instantly when the sting was removed.

Question.—At Davis, Calif., I became very much interested in Mr. Root's lecture on the 13-fr. hive. I tried out 10 this season, and extracted 140 gallons of honey. The season before I had 20 colonies and got only 100 gallons. By giving the bees plenty of stores for the winter and packing them with shavings, I find that they come out strong in the spring ready for the honey flow. H. G. Brause.

California.

Answer.—We have received quite a number of letters from California beekeepers saying that they have tried out 12-and 13-frame hives. Practically every one of them speaks as does the writer above. This is not mentioned because we advise our readers to adopt 13-frame hives. The point we wish to make is that strong colonies, whether in two 8-frame or two 10-frame hive-bodies, 13-frame or Jumbo 10-frame hives, are the kind that get the honey. In some localities the 13-frame Langstroth hive, or the 10-frame Jumbo hive is preferable to two 8- or 10-frame hives tiered up. No one should adopt any other style of hive than the regular one without trying a few first. In all our talks we have urged the importance of trying only a few, and that is precisely what most have done.

OUR HOMES

A. I. ROOT

And when they (the Pharisees) saw some of his disciples eat bread with defiled, that is to say, with unwashen hands, they found fault.—Mark 7:2.

There is nothing from without a man, that entering into him can defile him; but the things which come out of him, those are they that defile the man. —Mark 7:15.

For from within, out of the heart of men, proceed evil thoughts, adulteries, fornications, murders, thefts, covetousness, wickedness, deceit, lasciviousness, an evil eye, blasphemy, pride, foolishness.—Mark 7: 21-22.

IF you read the whole of that seventh chapter of Mark, you will notice it was the pious Pharisees that began to pick on the followers of the Lord Jesus Christ and criticise them because they did not observe the ceremony—please notice I say *ceremony,* because it was *only* a ceremony—of washing hands before eating. They did not claim the disciples' hands needed washing, but the ceremonial washing they insisted on was only a part of their traditions. We can not for a moment suppose the dear Savior would advise coming to the table with soiled hands. After I have been working in the garden, of course I am careful to wash my hands thoroly before responding to the call for dinner; and in order to do this as quickly as possible, both here in Medina and down in Florida, I have a wash-basin, towel, and some soap right handy out in the shade; and I have them outdoors so that I may use as much water as I choose without being as careful as I would be in the bathroom. Now, what our Savior meant to teach was the folly of spending time, and perhaps debate, on non-essentials. These same Pharisees, probably, or at least some of them, were guilty of the awful sins and crimes enumerated in our last text; and yet they made a great fuss because the disciples neglected the washing of their hands when they were probably already clean.

Those of you who have been following the prohibition crusade have noticed again and again how the laws against intoxicants make an exception of "wine for sacramental purposes." This would seem to indicate that there are churches—I do not know what kind, and I am glad that I do not—that insist on having *intoxicating wine* at the communion table. Why, it seems to me just awful to think that in this day and age of progress any man, woman, or child should insist that the wine for the holy communion table should be *intoxicating.*

Years ago an intemperate man in our town was reformed and seemed to be thoroly converted. I think our church then used real wine. When it came to communion he asked to be excused, saying a taste of that stuff would set him crazy. The old tempter would seize the chance to get him again into his clutches. I can not remember exactly, but I am really afraid the good deacons told him he would have to partake of the wine with the rest; and they did not seem to know of any *other kind* of wine at that time. The poor man set aside his better judgment and tasted the wine; and, sure enough, just that little taste of wine started the old craze, and he went off on a drunken spree, and that was the last of his conversion. You may say that this is exceptional and extravagant, but it is not. Satan once held *me* in his clutches, and I know what it means. Unless we get right down to the principle of "touch not, taste not, handle not," we are on the side of danger.

There is great talk just now about a union of the churches, and may God prosper the undertaking. But before that time comes I hope and pray that not a church will be found composed of people who think the wine must be intoxicating.

There has been a lot of debate as to whether the wine of ancient times was intoxicating or just unfermented grape juice. Now, I would not waste a minute in any such stupendous folly. It does not matter four cents' worth whether the wine the Savior used was intoxicating or not. If he were here on earth at the present time *he* certainly would not object to any red juice as an emblem of the precious blood he shed that you and I might be clean—yes, "whiter than snow."

Let me digress a little. On page 464 I copied what Mr. Trumbull, editor of the *Sunday School Times,* says about the defeat of injustice. Some one may ask where he got his authority for saying that we should not worry nor even give a passing thought to what people say about us nor even when they abuse us. The authority for it is in that 15th verse. Nothing can hurt us from the outside. It is only the things that come from the inside. An illustration comes to my mind just now that will help you to realize the danger of merely *thinking* or letting your mind run along channels where there is danger. Over 40 years ago there was a merchant doing business on our streets right in the busiest part of the town. He had, perhaps, managed unwisely, and during the severest cold weather in January he had but few customers and but little to do. Right here comes in that good old adage:

Satan finds some mischief still
For idle hands to do.

The property was pretty well insured, and the prince of darkness slyly suggested to him that he could set his premises on fire and call out the fire company when the flames had reached a certain point, and thus get quite a little insurance. Perhaps I should explain that he confessed all this to me while he was in jail. He said that when the first thought occurred to him he rejected it at once; but as the days followed, and he did not find much to do, he kept thinking of how it *might* be done and yet escape detection. Again and again he rejected the thought, but somehow it got to be a kind of craze or passion with him. He could not *cease* thinking about it. Right here comes in the Savior's warning. One night when this man had closed up his place of business during a severe zero spell, he went about the premises planning where he might put the kerosene and how he would manage. Finally he poured out kerosene in several places and touched the match. When the flames began to endanger the town he raised the alarm. After a hard fight the fire was put out. If it had got beyond control, it would probably have burned up the busiest street and perhaps the whole town. But, as it happened, he miscalculated a little. He had raised the alarm somewhat too soon. There were parts of the premises where the firemen smelled and found kerosene that had not been reached by the fire. This man not only made a full confession, but on his knees on the floor of the jail he asked the Lord to forgive him. I do not know now what has become of him; but I hope the lesson was sufficient so that ever afterward, when evil thoughts intruded, he said, "Get thee behind me, Satan." And I hope, too, that ever afterward he "kept busy" doing something to bless instead of injuring his neighbors and fellow-men.

Please consider once more the text which I have repeated so often, "Let the words of my mouth, and the meditation of my heart," etc. If you keep all kinds of evil thoughts out of your heart you will not have any trouble with intemperance or worse things. Yes, there *are worse* things than intemperance. In the 21st verse our Savior says, "Out of the heart proceed evil thoughts." Now please notice carefully, when he speaks of the awful sins that humanity is guilty of, which one he mentions first. Is it murder? Not so. In his enumeration of the sins that mankind is guilty of he first mentions "adulteries." And when I think of the divorces that are now getting to be more and more prevalent, of the illegitimate children that are born and sent loose on the world, of the young criminals that are cropping out here and there, and reflect that adultery is very likely the real starting point of these things, I begin to think the Savior was right in putting adultery and fornication first. Strong drink is beginning to be considered the starting point of most of our crimes, and perhaps it is. But I am beginning to think, as I grow older, that adultery is probably worse than strong drink; and this awful sin, perhaps more than any other, starts first in "the meditation of the heart." Of course strong drink is the great ally of adultery. Under the influence of liquor, perhaps just a little alcohol, a man's thoughts naturally run that way. In Proverbs 23:33, we read that the one who is under the influence of drink shall "see strange women, and thy heart shall utter perverse things." In the last verse of chapter 9 of the same book we read, "Her guests are in the depths of hell."

Once more let me repeat that when the time comes when all mankind, or perhaps we might say when all who profess to be followers of the Lord Jesus Christ, shall make this little text their own, that has been in my mind so much, and that I have talked about again and again and prayed over daily; or, better still, when all mankind make that prayer *their* prayer, the glad time that is expressed in the Lord's prayer will be near at hand—"Thy kingdom come, thy will be done on earth as it is in heaven," divorces will cease, illegitimate children will be unknown, and *crime*, that just now seems to be getting worse and worse, especially in our great cities, will be almost, if not quite, unknown.

Right close by where I am writing, in our Medina jail is a boy 17 years old who is charged with having committed murder —yes, I think it was deliberate murder. His home is not in our county of Medina.

It is or was in Orrville, Wayne County, where the number and character of open saloons have been almost the worst of any in Ohio. In company with two other boys of about the same age he commenced robbing stores in the surrounding towns, but for some reason escaped arrest for quite a time. Finally, when the officers of the law caught him red-handed he deliberately shot the officer with a revolver which he carried for such an emergency. He probably was under the influence of liquor at the time. What should be done with him?

Now, once more in closing let me repeat that precious text:

> Let the words of my mouth, and the meditation of my heart, be acceptable in thy sight, O Lord, my strength and my redeemer.

"PARCHED CORN" FOR HEALTH AND ALSO TO REDUCE THE "H. C. L."

Today is Jan. 9, and I am still using (finely ground) parched corn *three times a day.* I am also, three times a day, thanking God for splendid health, and strength for a lot of work thrown in. The following, from the *Rural New Yorker* of Jan. 3, is along the same line, only it doesn't touch on *parched* corn and wheat.

> At this season we naturally think of new things—things which promise to change life somewhat in the future. A flock of these things are flying this way. Some will be shot down by practical experience, but others will continue to fly away with some of our present "fixed" habits. We have been trying a little electric grinder. You simply attach it to the ordinary lighting wire, pour in a quantity of whole grain, and turn on the current. The motor does the work, turning out a fine quality of entire flour or meal. By regrinding and sifting you may have fine flour and a coarser bran which makes a fine boiled "cereal." We washed corn, wheat, or rye, dried in the oven, and with this simple device prepared a flour excellent for bread or cakes at one-third the price of "patent" flour. The machine is not yet manufactured in large numbers, but we think it has a great future. We think the use of this family ground grain will increase, especially among town and city people and bakers. They will simply buy the entire grain, make their own flour, gain the habit of eating it and save half their flour bills. We are told that in England many small farmers and gardeners are raising small patches of wheat to be used somewhat in this way. The yield of wheat on good land with hand cultivation is enormous. This is one of the changes we must look for in the future.

No "sifting" of the finely ground grain *for me;* I want the whole of the corn, as God gives it to us. Put it into very hot milk and add a little honey or Florida syrup or sugar, and who could ask for more?

NOT $1.00 AN HOUR, BUT $1.00 A MINUTE—THE WAGES A CALIFORNIA BEEKEEPER PAYS.

The following, which I clip from the *Scientific American* of Dec. 27th, I think will interest our readers from several points of view:

> BEE-FARMER USES AIRPLANE.
>
> In the stress of a seedtime or harvest emergency, farmers have had to pay unprecedented prices for labor, but none, so far as we have heard, has equaled Nelson W. Peck of the Yakima Valley, Washington. Peck keeps bees—a lot of them. Fruit blossoms are an important source of nectar out in that country, and spray-poisoned orchards a lively menace to the beekeeper. In fact, in 1918, Peck lost over 700 hives of bees from poisoning, a mighty big loss when we consider the depreciation in his investment together with the loss of potential profits. Honey prices were away up, so that every single efficient colony was a sizable asset.
>
> To prevent a repetition of poisoning losses in 1919, Mr. Peck employed expert labor at $1 a minute—$60 an hour. The expert was an aviator. Is Nelson W. Peck the first farmer in the United States to employ an aviator in his farming business?
>
> On the first of several flights with the aviator, Peck was up 75 minutes. His object was to pick out stands for his bees sufficiently removed from spray-poisoned orchards to guarantee safety, and he could think of no way of doing this like observation from an airplane. To Peck, the cost of the service, $1 a minute, was a mere trifle, beside its value to him. He says he would have saved $10,000 in 1918, had he taken such a flight before setting his bees. The system followed by big beekeepers like Peck is to establish small yards at scattered points in a wide territory, as in this way only is it possible to keep many hundreds of colonies. As the honeybee seldom forages above two miles from the hive, it is practical to make locations from an airplane.

If California had a law against spraying while the trees are in bloom, would not the orchards be a benefit to the bees, and the bees in like manner to the orchards? Will not some of our California friends tell us more about this matter?

COUGHS AND COLDS IN FLORIDA DURING WINTER TIME.

> *Dear Mr. Root*:—I do not call to mind that you have ever told us in GLEANINGS whether coughs and colds are as common in Florida as they are in the North.
>
> Just now we are having a most dangerous epidemic of this scourge.
>
> Will you please write me your experience and observation on enclosed postal card. Kindly yours,
>
> T. M. POLK.
>
> Patterson, Mo., Jan. 23, 1920.

Of course, we don't have coughs and colds here as you do in the North, for our winters are about the same as, say, May and September in the North. We did have the "flu," at least some did, a year ago; but I do not know of any one around here just now who has either cough or cold. Better come down here and try it. I am glad you called attention to the matter. It is surely a fine place for old people.

Your old friend,
A. I. ROOT.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover extracted honey in 5-lb. pails. L. S. Griggs, 711 Avon St., Flint, Mich.

FOR SALE.—New crop clover honey, two 60-lb. cans to the case. Sample 20c.
W. B. Crane McComb, Ohio.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Raspberry-milkweed honey in new 60-lb. cans (2 in case).
P. W. Sowinski, Wharton, Ohio, R. D. 1.

FOR SALE.—Finest quality extracted white-clover honey and buckwheat honey in 60-lb. cans, two in a case. Chas. Sharp, Romulus, N. Y.

FOR SALE.—Four tons choice clover honey, extra well ripened, packed in new 60-lb. tins, two in a case. Wish to sell in one lot.
Lee & Wallin, Brooksville, Ky.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey, in 60-lb. cans, at 22½c per lb. f. o. b. Brooksville. Sample 25c.
W. B. Wallin, Brooksville, Ky.

We have a very choice lot of white clover honey for sale at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—We have a small part of our crop of white clover-basswood extracted honey left, packed in new 60-lb. cans, two to the case. Write for prices. D. R. Townsend, Northstar, Mich.

FOR SALE.—Amber mountain honey, 20c; sage honey, 25c; dark honey, 15c; in 60-lb. cans. Bees and 4-frame extractor wanted.
C. F. Alexander, Campbell, Calif.

FOR SALE.—1,400 lbs. of light-amber honey in new 60-lb. cans. Price 21c per lb. f. o. b. New Sharon, Iowa. Send for sample. I also have about 60 wood-and-wire queen-excluders for sale in good condition. Fred Briggs, New Sharon, Iowa.

FOR SALE.—Extracted honey, fine quality clover, 25c; clover and buckwheat mixed about half and half, 20c. Two 60-lb. cans to case, in 5-lb. pails 3c a pound extra. Some buckwheat comb honey at $6.50 per case of 24 sections.
H. G. Quirin, Bellevue, Ohio.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey; but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many, at only 25c per pound on car here at Northstar. Kindly address, with remittance.
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Small lots of off-grade honey for baking purposes.
C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED. — Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax. E. B. Rosa, Monroe, Wisc.

BEESWAX WANTED.—During February I will pay 42c per lb. cash for average yellow beeswax, delivered here. State quantity and quality and await reply before shipping.
E. S. Robinson, Mayville, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 40c cash, 42c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.
The A. I. Root Co., Medina, Ohio.

WE BUY HONEY AND BEESWAX.—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to a case. Extracted honey, quantity, how packed, and send samples. Charles Israel Bros. Co., 486 Canal St., New York, N. Y.

FOR SALE

Root's Goods at Root's Prices.
A. W. Yates, 3 Chapman St., Hartford, Conn.

I manufacture Modern Cypress beehives. Write for prices. J. Tom White, Dublin, Ga.

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—500 lbs. good average yellow beeswax. L. E. Evans, Onsted, Mich.

FOR SALE.—40 Danzenbaker hive bodies.
Geo. W. Cook, Latty, Ohio.

A full line of Root's goods at catalog prices. Catalog on request. Will buy your beeswax, 40c cash, 42c trade. A. M. Moore, Zanesville, Ohio.

FOR SALE.—Four-frame reversible extractor for hand power. Price, $30.00.
L. D. Gale & Son, Mayville, N. Y.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

FOR SALE. — Push-in-comb queen-introducing cage, The Safe Way, 50c.
O. S. Rexford, Winsted, Conn.

FOR SALE. 100 lbs. Dadant's medium brood foundation, all new and standard size, $75.00 takes it. Wm. G. Blake, Port Huron, Mich.

FOR SALE.—A 10-inch foundation mill in perfect condition.
F. R. Manning, R. D. No. 2, Meaford, Ont., Can.

STILES BEE SUPPLY COMPANY, Stillwater, Okla. We carry a full line of Root's Bee Supplies. Beeswax wanted. Free catalog.

FOR SALE.—Used 5-gal. square cans, two in a case. Good bright cans, first-class cases, 50c per case f. o. b. my station.
Floyd Markham, Ypsilanti, Mich.

FOR SALE.—One Cowan two-frame reversible extractor, for Langstroth frame. Good as new. First check of $25.00 takes it.
Meyer Bros., R. D. No. 1, Preston, Iowa.

FOR SALE.—Ten 8-frame hives, 6 comb and 5 extracting supers, all painted; 250 new sections; 25 separators. For prices and description, address
Lawrence Ricklefs, Troy, Kans.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition at 50c per case. Buy them now for next season's honey crop.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Comb foundation at prices lower than you had thought possible. Wax worked for cash or on shares. Satisfaction guaranteed.
E. S. Robinson, Mayville, N. Y.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—60 ten-frame 4 x 5 x 1⅜ plain section supers with sections, section-holders, and fences, about 30 painted. Been used one season. No foul brood. Best offer takes the lot.
F. D. Stephens, Box No. 383, West Branch, Mich.

FOR SALE.—1,000 Standard beehives in flat, 8- and 10-frame sizes; supers with sections; full depth and shallow extracting frames. Entire lot new and strictly first class. We will sell in large or small quantities at low prices.
The Stover Apiaries, Helena, Ga.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—150 section shipping cases nailed up with glass front holding 20 4 x 5 plain sections, 15c each. New nucleus cages nailed ready for use; 20 3-fr., 20c each; 57 2-fr. 15c each; 28 3-lb. cages, 30c each; 148 2-lb. cages 20c each; 150 1-lb. cages, 15c each.
The Hyde Bee Co., Floresville, Texas.

FOR SALE. — Good second-hand double-deck comb-honey shipping cases for 4¼ x 4¼ x 1⅞ sections, 25c per case, f. o. b. Cincinnati. Terms cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

"Stanley's queen-rearing nursery twin-mating boxes, cell cups and protectors. Cheapest and most adaptable. Write for information and prices. We can take a few more pupils in our queen-rearing course. A. Stanley & E. C. Bird, 2008 Pearl St., Boulder, Colo.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10-frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

FOR SALE.—4,000 sections, 4¼ x 4¼ x 1¾, A grade, $8.00 per M; 25 reversible cypress bottom-boards, eight-frame, $12.00; 30 metal covers with metal-bound inner cover, eight-frame, $4.25 per five; 1 Root wax press, $15.00; 15 plain section supers, 4¼ x 1½, with holders, $4.35 per five. Prices are f. o. b. here, cash with order.
Mason Bee Supply Co., Mechanic Falls, Maine.

FOR SALE.—75 new supers, nailed and complete without sections, equipped for 4¼ x 4¼ 2-beeway sections for the standard 8-frame hives at $1.00 each in lots of 10 or more, crated and delivered at freight office at Glasgow, Ky.; also 12 new one-story 8-frame hives with Hoffman frames, with two coats of white paint on them at $4.00 each for the 12.
Joel O. Gorman, Glasgow, R. D. No. 4, Ky.

FOR SALE.—New and second-hand equipment. 400 comb-honey supers, 4¼ x 4¼ x 1⅞, 10-frame; 2-frame extractor; 100 shallow extracting supers; 10-frame Bartlett Miller capping melter; 5 Dadant hives with one extracting super; Root capping melter; 100 8-frame hives, complete; one steam knife with generator; 100 8-frame hives, covers, excelsior; 150 fences 4¼ sections; 100 8-frame hives, bottoms; 2 Standard smokers; 3 Junior smokers; 400 Hoffman frames, new; 500 metal-spaced frames, new; 100 pounds Superior medium brood foundation; 67 pounds Dadant's medium brood foundation, 4½ x 16½; 16 10-frame hive bodies, new. All good, used but one season, and some never unpacked. Write for prices on what you want. Sunnyside Apiaries, Fromberg, Mont.

REAL ESTATE

FOR SALE.—Twenty-acre farm, 200 colonies of bees, one acre ginseng and golden seal. Good soil, buildings, bee equipment and location.
L. Francisco, Dancy, Wisc.

FOR SALE.—25 acres 2 miles from Waverly, Va., in the peanut belt, good for poultry; 3-room house, few fruit trees, 45 grape vines, $1,500.00.
C. B. Peterson, 6959 Union Ave., Chicago, Ills.

Small fruit ranch, eight-room brick house, well, cellar, $3,500.00. 160 colonies bees and equipment, $1,500. Both, $4,750. Location: Adjoins High School, Alfalfa bee range.
E. T. Israel, Kirtland, N. M.

WANTS AND EXCHANGE

WANTED. — Used 8- and 10-frame standard hives and supers. W. O. Hershey, Landesville, Pa.

WANTED.—Reliable second-hand two-frame honey-extractor. H. L. Sherwood, Cornwall, N. Y.

WANTED.—Two-frame Cowan extractor in good condition. Harold R. Curtis, R. F. D. No. 4, Bridgeport, Conn.

WANTED.—200 or less colonies of bees (any style hive) for spring delivery.
A. W. Smith, Birmingham, Mich.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Used six- or eight-frame power extractor, also pump. Describe fully and give price.
C. E. Swenson, 1522 12th Ave., Rockford, Ills.

WANTED.—To buy or exchange an 18" or 20" planer, band saw and jointer, and a foundation mill.
Wm. S. Ammon, 15 So. Front St., Reading, Pa.

WANTED.—To buy bee hives in or around Chicago, if anybody has them for sale. Write
John Stettka, 1001 W. 16th St., Chicago Ills.

WANTED.—To exchange choice of two incubators or Candee Colony brooder (coal burning) for good extractor, or other bee supplies of equal value.
H. J. Kling, Fultonville, N. Y.

WANTED.—By a man (with family of three, one boy 14 years) to run bees on shares, would work for wages. 40 years old, good habits, 10 years of experience. Geo. K. Taft, Halfway, Mo.

WANTED.—To buy bees for April delivery, free from disease, in southeastern Minnesota or western Wisconsin. State how many colonies, kind of hives, and price. P. B. Ramer, Harmony, Minn.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co. Pearl & Walnut St., Cincinnati, O.

WANTED.—To buy small apiary of 50 colonies more or less, in good locality, guaranteed free from disease. Ontario, west of Toronto, preferred. A. Millard, c o Chas. Annis, Pickering, R. D. No. 2, Ont., Can.

WANTED.—To buy 50 ten-frame dovetailed hives and 100 eight-frame with queen-excluders, wire combs or full sheets foundation in column. Must be cheap.
Grover C. Abbey, Columbia X Roads, No. 2, Pa.

WANTED, BEES. — Commercial apiaries completely equipped for extracted-honey production, at reasonable terms, in white-honey region. Preferably 300 colonies or more.
G. H. Cale, 423 Dorset Ave., Chevy Chase, D. C.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens. No bees.
W. G. Lauver, Middletown Pa.

FOR SALE.—One to fifty colonies in 8-frame hives, good condition. W. M. Robb, Neal, Kans.

FOR SALE.—Fifty full colonies about May first.
J. Ford Sempers, Aikin, Md.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Pure-bred Italian bees in season, 20 years' experience. T. C. Asher, Brookneal, Va.

QUEENS ON APPROVAL.—Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

QUEENS ON APPROVAL.—Bees by package or colony. Birdie M. Hartle, Reynoldsville, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—1920 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son Binghamton, N. Y.

FOR SALE.—2-lb. packages Italian bees with queens and 2-frame nuclei with queens. Can guarantee shipment April 20.
O. J. Spahn, Pleasantville, N. Y.

FOR SALE.—Golden and three-banded queens untested, April, May, and June delivery, $1.25 each; $12.50 per doz. Satisfaction.
R. O. Cox, Greenville, R. D. No. 4., Ala.

We will ship 2-lb. packages and full colonies only this season. Three-banded Italian queens any quantity. Send for prices. J. A. Jones & Son, R. D. No. 1, Box No. 11-A Montgomery, Ala.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

BEES BY THE POUND. — Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

Bees by the pound a specialty; 2000 lbs. for May delivery, 1920; 200 Italian queens for sale with above bees. Write for prices.
A. O. Jones & H. Stevenson, Akers, La.

GOLDENS THAT ARE TRUE TO NAME. 1 select untested queen, $1.50; 6, $7.50; 12, $13.50; 50 $55.00; 100, $100.00.
Garden City Apiaries, San Jose, Calif.

FOR SALE.—Ten colonies of bees in ten-frame Buckeye double-walled hives; also 20 new shallow extracting supers with frames and full sheets of foundation. Pinehurst Farm, Oberlin, Ohio.

A. I. Root strain of resisting and honey-gathering leather-colored Italian queens that a trial will convince. Untested, $1.50 each; 25 or more, $1.40; tested, $2.50 each; 25 or more, $2.25; select tested, $3.00. A. J. Pinard, Morgan Hill, Calif.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, $2.00; six, $8.00; doz. $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

BUSINESS-FIRST QUEENS.—Untested, $1.00 each; $11.00 per doz.; select untested, $1.50 each; $12.00 per doz.; tested, $2.00 each; select tested, $2.50 each; breeding queens, $5.00 and $10.00 each. Safe arrival guaranteed in the United States.
M. F. Perry, Bradentown, Fla.

FOR SALE.—Italian queens three-banded and Goldens. High grade, carefully bred from best select stock. Price each, $1.25; 6, $6.75; 12, $13.25; extra select, $2.00. Orders booked now. Satisfaction guaranteed.
G. H. Merrill, Pickens, S. C., (Formerly Liberty.)

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15 $1.50 each. After June 15, $1.30 each; $12.50 for 10; $1.10 each when 25 or more are ordered. Allen Latham, Norwichtown, Conn.

FOR SALE.—Bees, good hybrid stock from outyards. Queens, three-band Italians carefully bred at home yard. No disease. Bees with untested queens: 1 lb., $3.60; 2 lbs., $5.50; 3 lbs., $7.40. Write for quantity rates.
A. R. Graham, Milano, Texas.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

We have enlarged our queen yard considerably. We can take care of orders better than ever, large or small. April 15 to June 1, untested queens, $1.25; tested, $2.50; untested, $115.00 per 100. After June 1, $1.00 each or $90.00 per 100. J. A. Jones & Son, Montgomery, R. D. No. 1 Box 11a, Ala.

THE BEES THAT PLEASE. Three-banded leather-colored Italians, hustlers, none better, 2-lb. packages only. Untested queens, $1.25; 2-lb. packages, $4.75. Ready to ship about April 15. 25 per cent in advance, balance to be paid before bees are shipped. Write for circular.
J. M. Cutts, R. F. D. No. 1, Montgomery, Ala.

FOR SALE.—Italian queens from some of the best stock in the U. S., mailed as soon as hatched. Safe arrival guaranteed to any part of the U. S. and Canada. All queens mailed in improved safety introducing cages. Order early. Send for circular. Prices April to October, 1, 75c; 10, $6.00; 50, $27.50. James McKee, Riverside, Calif.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

1920 prices on nuclei and queens. Miller strain. Queens, untested, $1.50 each; $15.00 per doz.; tested $2.00 each, $22.00 per doz. One-frame nucleus, $3.00; two-frame, $5.00; three-frame, $6.50, without queens, f. o. b. Macon, Miss. We have never had any bee or brood disease here. Will have no queens except for nuclei until June 1. Safe arrival and satisfaction guaranteed.
Geo. A. Hummer & Sons, Prairie Point, Miss.

ITALIAN QUEENS.—The Old Reliable three-banded Italians, the best all-around bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, $1.50; 6, $8.00; 12, $15.00. Tested, $2.25; 6, $12.00; 12, $22.00. Select tested, $3.00 each. Descriptive circular and price list free. John G. Miller, 723 C St., Corpus Christi, Texas.

FOR SALE.—Highest Grade Three-banded Italian queens, ready June 1. Queen and drone mothers are selected from stock of proven worth in hardiness, gentleness, honey production and disease-resisting qualities. Untested, each, $1.25; 6, $6.50; 12, $12.00; 50, $47.50; 100, $90. Your correspondence will receive prompt attention and I guarantee satisfaction.
A. E. Crandall, Berlin, Conn.

FOR SALE.—640 colonies of bees with 2,000 supers of drawn comb; 200 empty supers; 200 comb-honey supers with sections; queen-excluders for every colony; 300 escape-boards with escapes; 1 8-frame power extractor, 2 H. P. gas engine; 1 4-frame hand extractor; 3 2-frame hand extractors; 10 1,000-lb. honey tanks. This is one of the best equipments east of the Mississippi River. All in A 1 condition. Price $8,000.
Virgil Weaver, Falmouth Ky.

ITALIAN QUEENS OF WINDMERE will be ready in May. Untested, $1.25 each; six for $7.00. Tested, $2.00 each. Select tested, $2.50 each. Now booking orders. Prof. W. A. Matheny, Ohio University, Athens, Ohio.

MOTT'S NORTHERN BRED ITALIAN QUEENS.—I have breeding mothers placed in the South for April and early May queens. Plans "How to Introduce Queens and Increase" 25c. If you want beauty with the best of summer and winter laying birds, try a setting of my Golden Campines. E. E. Mott, Glenwood, Mich.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. $1.50 per year. 15 cents per copy. Postals not answered. Charles D. Sherman. 107 Highland Court, Hartford, Conn.

MISCELLANEOUS

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

STRAWBERRY PLANTS.—Imp. Senator Dunlap, the greatest of all strawberries, $1.00 per 100, by mail postpaid; $6.00 per 1,000 by express.
McAdams Seed Co., Columbus Grove, Ohio.

MAPLE SYRUP.—I am now booking orders for pure maple syrup to be delivered in April. A good bee-food. Write for prices.
G. E. Williams, Somerset R. D. No. 4, Pa.

HELP WANTED

WANTED. — Three queen-breeders and three practical beemen. Write
Northropic Honey Co., Guatemala, C. A.

WANTED.—A competent beekeeper to work bees in southern New Mexico. Must be thoro and fast worker. Mesilla Valley Honey Co. Canutillo, Tex.

WANTED.—Man, season of 1920, to work with bees. State age, experience, and wages. Give reference. Permanent employment to right man. The Rocky Mountain Bee Co., Box No. 1369, Billings, Mont.

WANTED.—An experienced queen-breeder and also helper in our package department. Would like to have helper experienced in handling a Ford car. State experience and salary expected in first letter. M. C. Berry & Co., Hayneville, Ala.

WANTED.—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted. W. A. Latshaw Co., Clarion, Mich.

WANTED.—May first, man with some experience or student at less salary, who wants to learn the bee business. Home yard in village, out-yard. 300 colonies. Up-to-date outfit. Give all details and wages expected in application.
D. L. Woodward, Clarksville, N. Y.

WANTED.—Two young men as students for coming season. Have twelve apiaries, giving extensive experience. Must be of clean habits. Give age, height, weight, condition of health, and if brought up in town or country. For terms, apply
R. F. Holtermann, Brantford Ont., Can.

WANTED.—One experienced beeman and one helper. Must be young men, able-bodied, and with good character. Prefer one man that can handle auto truck. State salary and give references when answering. Ernest W. Fox, Fruitdale, So. Dak.

WANTED.—One experienced man and students, as helpers with our 1,000 colonies. Best opportunity to learn the business from A to Z, in the actual production of carloads of honey. Theory also. Write immediately, giving age, height, weight, habits, former employment, experience, references, wages, photo, all in first letter. E. F. Atwater (former Special Field Agent in Beekeeping, U. S. Dept. Agr. for Calif., Ariz., and New Mexico), Meridian, Idaho.

SITUATIONS WANTED

WANTED, POSITION.—By young man with seven years' experience. Can also help with farm work. Frank Lee, Bristow, Va.

WANTED. — Student having attended winter course in Poultry Husbandry and also special short course in beekeeping held at Cornell University last year is anxious to secure employment on farm where poultry and beekeeping are combined. Preferably in N. Y. State.
H. J., care of Gleanings, Medina.

ALWAYS ON TOP

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BEEKEEPERS' SUPPLIES

The Kind You Want and The Kind That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co's brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Complete Line of

Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

BETTER SEEDS

Pheasant Eye Beans. New bush stringless—**35 day** Beans, **Hot Squash Peppers.** Carrots sweet enough for Pies. **New Narrow Grain Sugar Corn.** Also Red Skin Dent corn, shock it in **70 days.** Write for complete **Seed Catalog No 85.**

J. A. & B. LINCOLN, Seed Growers
39 South La Salle Street Chicago, Illinois

450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample grapes mailed for 25c. **Catalog free. LEWIS ROESCH, Box L, Fredonia, N.Y.**

SWEET CLOVER 6.40 BU.

Greatest Money Making Crop. Big Money for the grower. Builds up land rapidly and produces heavy money making crops while doing it. Excellent pasture and hay. Easy to start. Grows in all soils. White Blossom unhulled. Our scarified, highly germinating tested Seed is the best Write today for big Seed Guide and FREE Samples·
American Mutual Seed Co. Dept 951 **Chicago, Ill.**

CONDON'S GIANT EVERBEARING TOMATO

"QUEEN OF THE MARKET." Big Money-Maker. Large, solid fruit; excellent canner. To introduce to you our Northern Grown "Sure Crop" Live Seeds, we will mail you 125 seeds of **Condon's Giant Everbearing Tomato** and our Mammoth 1920 Garden and Farm Guide. **FREE** Tells how, when and what to plant for pleasure and profit. **Send postal today.**

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Rock River Valley Seed Farm
Box 90 ROCKFORD, ILLINOIS

BEAUTIFUL IRIS

Splendid Collection of Best Varieties. Gorgeous Colors. All postpaid at Price Named.

	Each	Doz.
MME. CHEREAU, white, blue fringed - - - -	25c	$2.50
LENOLDAS, dark blue - - - - - - -	25c	2.50
SANS SOUEL, yellow, petals wine - - - - -	20c	2.00
GRACCUS, yellow, petals light wine - - - -	20c	2.00
OSSIAN, canary yellow, petals light purple - -	20c	2.00
SIBERIAN, blue - - - - - - - - -	25c	2.50
FLORENTINE, purple - - - - - - - -	20c	2.00
CELESTE, sky blue - - - - - - - -	25c	2.50
FLAVESCENS, lemon yellow - - - - -	20c	2.00
GOLD COIN, yellow, petals purple - - - -	20c	2.00

Collection one plant each variety postpaid $2.00.

W. N. Scarff & Sons New Carlisle, Ohio

GOOD SEEDS

GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Ill.

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable —Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Write for Book Today

FARM WAGONS

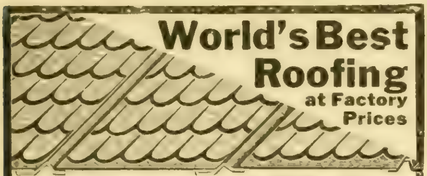
High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.

ELECTRIC WHEEL CO., 23 Elm Street, Quincy, Ill.

FOR SALE--THREE-BAND ITALIAN QUEENS

From best honey-gathering strain obtainable. (No disease.) Untested queens, $1.25 each: 6, $6.50: 12, $12. Select untested, $1.50 each: 6, $9: 12, $18. Tested, $2.50 each. Safe arrival and satisfaction guaranteed. Your orders filled promptly.

W. T. PERDUE & SONS, Rt. 1, Fort Deposit, Ala.



World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 383

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.,
333 383 Pike St., Cincinnati, O.

FREE
Samples &
Roofing Book

VICK'S GARDEN & FLORAL GUIDE for 1920

IT'S FREE WRITE TODAY

Free, a worth while book for vegetable growers and lovers of flowers. For 71 years the leading authority on Vegetable, Farm and Flower Seeds, Plants, Bulbs and Fruits. Never before has the pressure of high prices so emphasized the value of gardening. Whatever else you do today write for Vick's Garden and Floral Guide. Remember it is FREE. A postcard is sufficient. Do it now before you forget.

Vick's Quality Seeds Grow the Best Crops the Earth Produces

Many hundreds of gardeners have testified to this. Get the Guide and see actual pictures of 5 acres Lettuce that sold for $7,500, five acres celery for $5,000, eleven thousand bushels Onions worth $2.00 per bushel.

With prices for market vegetables rising our seeds in proportion are lower than ever. Send for our catalogue today.

JAMES VICK'S SONS
33 Stone St., Rochester, N. Y. "The Flower City"

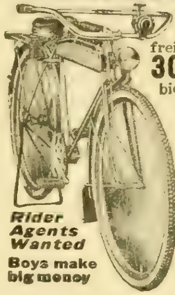
There is Big Money in Strawberries

and other small fruits these days. Strawberries sold as high as 50c a qt., $16. a bushel at wholesale. Are you receiving these high prices as a grower or paying them as a consumer? It makes a vast difference to your pocket book. You can grow nothing that gives handsomer returns. I know of farmers who received $1300 from 1-2 acre last year. If you live in a town a part of your lawn or back yard will make a fine strawberry bed. Our Everbearing plants set in April or May will bear in August and continue until November and give two crops the following season. Get our book," Farmer on the Strawberry," price 50c postpaid, and you will have all the experts know.

We sell Strawberries, Raspberries, Blackberries, Gooseberries, Currants, Fruit Trees, Roses, Shrubs, etc. Beautifully illustrated Catalog free.

L. J. FARMER, Box 8, Pulaski. N. Y.

Delivered TO YOU FREE



Your choice of **44 styles**, colors and sizes in the famous line of **"RANGER"** bicycles. We pay the freight from Chicago to your town.

30 Days Free Trial allowed on the bicycle you select, actual riding test.

EASY PAYMENTS if desired, at a small advance over our Special Factory-to-Rider cash prices. Do not buy until you get our *great new trial offer* and low prices and terms.

TIRES LAMPS, HORNS, pedals, single wheels and repair parts for all makes of bicycles at half usual prices. **SEND NO MONEY** but write today for the big new Catalog.

Rider Agents Wanted

Boys make big money

MEAD CYCLE COMPANY
Dept. F153 Chicago

Your copy is ready!

An evening spent with our 1920 catalog opens the way to a charming garden. Nursery stock and plants developed on our 1200 acre grounds at Painesville—seeds that will produce delicious vegetables and perfect flowers—are backed by our 66 years of good service. Write—tonight.

The Storrs and Harrison Co.
Nurserymen and Seedsmen
Box 15-C, Painesville, Ohio

To California Beekeepers:

We want to get one important consideration before you in a nutshell. It is this; when you buy Root beekeeping supplies, you get

THE BEST MADE

Back of our goods are 50 years of experience and tests. Bee-supply manufacturers may come and go, but we keep on, always keeping in mind quality, Quality, QUALITY. The good new things in bee supplies, we take on and make. The good old things we hold fast to. We would rather have the reputation of absolute dependability in our goods and our dealings with you than anything else. So back of every purchase you may make of us is our guarantee---as well as 50 years of fair dealing.

We respectfully solicit your business on the quality of our goods and on our business record.

The A. I. Root Co. of California

1824 East 15th St., Los Angeles   52-54 Main St., San Francisco

MAKE SURE

of having your Bee Supplies in ample time for the coming Season **by ordering them now.** And make sure that each dollar you spend, buys THE UTMOST in Good Quality and Right Construction, by ordering from DOLL—twenty years in the business in Minneapolis.

I am now splendidly prepared to make prompt shipments of White Pine Standard Dovetailed Hives—of Smokers, Extractors, Foundation, and other Supplies. Also ready to fill your order for 3-lb., 5-lb., and 10-lb. Friction-top Cans—for 5-gallon Square Cans—and for screw-top Honey Bottles of **white flint-glass,** ½-lb., 1-lb., 2-lb., and 3-lb. sizes. All clean, new stock of the most desirable sort.

Have on hand a number of second-hand Cans—used only for Honey, and in good condition. Am offering them at a sacrifice for quick disposal. And don't forget about Comb Honey Shipping Cases and Crates—I've got the kind you want—at prices that will interest you. If you order in quantity—and will accept shipment from factory I can SAVE YOU CONSIDERABLE MONEY on your season's supplies.

Mail me a list of your needs for the season—
and I will send you Price Quotations promptly.

P. J. DOLL BEE SUPPLY CO.

Dealer in Bees, Honey,
and Supplies

NICOLLET ISLAND   MINNEAPOLIS. MINN.

Our Food Page—Continued from page 153.

the milk a little at a time, stirring until blended. Serve at once. The cocoa may be omitted and any preferred flavor substituted. The honey flavor alone is fine.

HONEY PEACH ICE CREAM.

1 qt. can peaches
¾ cup honey
1 cup cream

Force the peaches thru a sieve or potato ricer, sweeten with the honey, and fold in the cream, which has been whipped until stiff. More honey may be preferred if the canned peaches are rather sour. Pack and freeze as usual.

HONEY BAKED APPLES.

6 tablespoons honey
6 apples
¼ lb. red cinnamon drops
1 tablespoon butter

Core the apples, leaving a little at the stem end, and arrange in baking dish. Put several cinnamon drops and a little honey in each apple, dot with butter, put the rest of the honey, cinnamon drops, and enough water to prevent the apples from burning in the dish, and bake until the apples are done.

CABBAGE SALAD.

3 cups shredded cabbage
½ onion
1 cup thinly sliced apple
1 cup salad dressing

Shred the cabbage with a sharp knife or slaw cutter, cut the apple, unpeeled, in tiny thin slices, slice the onion small, and mix together with the cup of salad dressing.

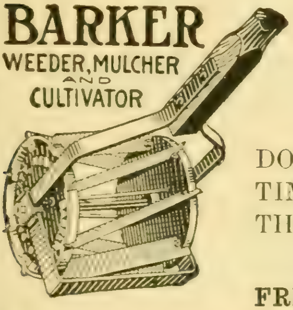
Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck
The Comb-foundation Specialist
Augusta, Kansas
Established 1899



Weeds and Mulches
In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER MANUFACTURING CO.
Dept. 10 David City, Nebraska

BARKER
MFG. CO.
Dept. 10
DAVID CITY, NEB.

Gentlemen. — Send me postpaid your free book and Factory-to-User Offer.

Name

State Town R. R. No. Box

Foresight

Is Better Than Hindsight

¶ Do you recall in times past that you have promised yourself to "buy early" the next season?

¶ Haven't there been instances where it would have been money in your pocket had you been ready for the bees?

¶ Let us suggest that you buy now for this season---and make it Root's goods. We sell them in Michigan.

Beeswax wanted. Send for our 1920 catalog.

M. H. Hunt & Son
510 North Cedar Street
Lansing, Michigan

HE'S NOT—AROUND THE OFFICE

"What has happened to M.-A.-O.?"—F. Richardson, Ely, England, Dec. 27, 1919.

About enough's happened to him. He's demized, that's what he's done. Mr. A. I. Root was the demizer. He took M.-A.-O. by the scruff of the neck, so to speak, and sent him a-kitin right out thru the back cover, as how I say he deserved, even if he was my cousin. He wont tell no more fishin whoppers in these columns, tho I seen him the other day tryin to make some double wall hives out of some old barn sidin (he wont buy a thing of Roots any more), and he says to me: Well, any way, I never went so far in Gleanins as to tell of a hen as what layed 16 eggs a day like Uncle Amos done. He hit his thumb nail with the hammer just then and I cant quote him no farther. He's got to keep his language to hisself and the squash bugs. He cant print it here no more.

While I was mousin around in some of

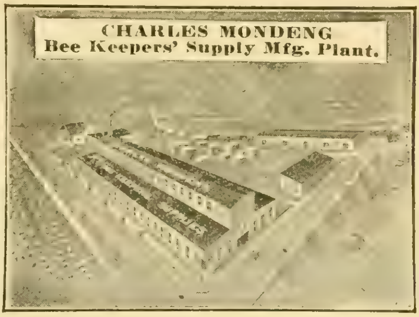
(*Continued on page* 185.)

TREES and SHRUBS

Of Highest Quality at living prices. Pleasing, prompt service. No money with order. We pay the freight and guarantee satisfaction. If interested, ask for 1920 Catalog. It explains.

THE PROGRESS NURSERIES
1306 Peters Avenue TROY, OHIO

$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once, 275,000 Hoffman frames; also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will take Beeswax in Trade at
Highest Market Price.

Charles Mondeng
146 Newton Ave., N. Minneapolis, Minn.

Forehand's Three Bands

THE THRIFTY KIND

We have been breeding these queens for the market for over a quarter of a century. They are bred from the imported Italians, but after years of select breeding we have brightened the color and retained the good qualties of their mothers.

After years of select breeding we have built up a strain of bees that are surpassed by none but superior to many. Our queens are thrifty, hardy, gentle, and beautiful.

PRICES
After April 1, to July 1

Kind	1	6	12	100, each
Untested	$1.50	$7.50	$13.50	$1.00
Select Untested	1.75	9.00	16.50	1.25
Tested	2.50	13.00	24.50	2.00
Select Tested..	4.00	22.00	41.50	3.35

Pound Bees from April 15 to June 30

Size	1	25 or more
One-pound package..........	$3.00	$2.75
Two-pound package..........	5.00	4.60
Three-pound package.......	7.00	6.45

Add the price of the queen wanted.

We guarantee pure mating, safe arrival and satisfaction.

W. J. FOREHAND & SONS -:- FORT DEPOSIT, ALA.
THE BEE MEN

AT SIOUX CITY, IOWA

YOU HAVE A MARKET FOR YOUR HONEY AND BEESWAX

WESTERN HONEY PRODUCERS
SIOUX CITY, IOWA
Address Dept. C

When you have honey for sale send sample and state the price you want delivered here.

You have a stock of Lewis Beeware at your command.

Send list of your wants and lowest prices will be quoted at once.

THAGARD'S ITALIAN QUEENS

I am booking orders for April to July deliveries. My Three-band queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

Untested Queens	$1.50	6, $7.50	12, $13.50
Select Untested Queens	$1.75	6, $9.00	12, $16.00

I guarantee pure mating, safe arrival, and perfect satisfaction. Circular free.

V. R. THAGARD -:- -:- GREENVILLE, ALABAMA

ANNOUNCEMENT

Quality Queens for Spring Delivery

Book your orders now. Head your colonies with the best mothers to be had and take advantage of high honey prices. Beekeepers who insist on the best queens, reared by the best methods known, will be convinced after a trial order that mine have no superiors. Several years' experience on a large scale. Have perhaps reared more queens in each of the past two years than any other queen-breeder up to the present time. Buy queens from the man who specializes in queens.

First: That you may expect prompt service. Next: That you can depend on getting full value for the price you pay. Because queen-work neglected to do something else is sure to show up somewhere, sometime. Last but not least: Know that you get what you order; buy from the man who advertises one strain only from the same yard.

Prices Cash With Order are as Follows

	Before July 1			July 1 to Nov. 1		
	1	6	12	1	6	12
Untested	$2.00	$8.50	$15.00	$1.25	$6.50	$11.50
Select untested	2.25	9.50	18.00	1.50	7.50	13.00
Tested	3.00	16.50	30.00	2.00	10.00	18.50
Select tested..	3.50	19.50	35.00	2.75	15.00	27.00

Doolittle's strain of Three-band Pure Italians have long been recognized as America's standard. Get them here and stock your apiaries with disease-resisters, from a location free of disease.

They are gentle and do justice in the supers. Satisfaction and safe arrival guaranteed or your money back

No nuclei, except to accompany tested or select tested queens. Write for prices.

JENSENS' APIARIES -:- PENN, (LOWNDES COUNTY) MISSISSIPPI

He's Not—Around the Office

M.-A.-O.'s litter and defunck effects at the offic the other day I found the follerin, written a year ago or more in which he says:

E. R. Root, editor-in-chief, is sometimes a mighty promptitudinous sort. For example, he started on Jan. 20 to meet a lecture appointment on beekeepin at the N. Y. State School of Agriculture at Alfred, N. Y. He laid out in the frost and zero weather inside an Erie railroad passenger station almost all one night for a train that was to take him there, but which was four hours late and then didn't stop at the station where he was steadily freezin. He saw it go by a-sailin at 3 a. m., and was madder'n Balaam ever was at his faithful old mule—only he couldn't get at his means of transportation with a shillalah the way old Balaam could and did. But he had it on Balaam in gettin word home for help, for he routed out the local telephone man and telephoned to Medina, 15 miles away, to get a relief expedition to him

(*Continued on page 187.*)

The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

100 EVERBEARING STRAWBERRIES Plants $2.00 POST PAID

200 for $3.85, 300 for $5.50. Americus, Progressive, Superb, Francis, Peerless.—some of each while in supply. When sold out of one or more we will send the others. Catalog Free.

C. N. FLANSBURGH & SON, Jackson, Mich.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England: If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

Hill's Evergreens Grow

Best for windbreaks and hedges. Protect crops and stock. Keep house and barn warmer—save fuel—save feed. Hill's evergreens are hardy, nursery-grown. Get Hill's free illustrated evergreen book and list of 50 Great Bargain Offers—from $4.50 up per Thousand. 56 years' experience. World's largest growers. Write

D. HILL NURSERY CO., Box 2462 Dundee, Ills. Evergreen Specialists.

SWEET CLOVER

Easy to start. Grows anywhere. Not only a good fertilizer, but produces immense crops. Big money-maker. Crops worth $50 to $125 per acre. Greatest forage plant that grows. You cannot miss it by sowing our superior scarified seed.

Don't delay writing for our 1919 catalog (116 pages) and circular giving full particulars. We can save you money on guaranteed seed.

A. A. BERRY SEED CO., Box 966 CLARINDA, IOWA

QUEENS Bees by the Pound *QUEENS*

Booking orders now with one-fourth down, balance just before shipping. We have for several seasons shipped thousands of pounds of bees all over the United States and Canada.

From Wisconsin: "Last year when my old-time beekeeping friends heard that I had bought bees from a man in Texas they called me a fool; but now I have more bees and more honey than any man in Green county. It is the talk of this part of the woods." (Same party has in his order again for over a thousand dollars' worth for spring shipping.)

From West Virginia: "The State Apiarist pronounced my queen one of the finest queens he ever saw. To say I am well pleased would be to put it mildly. Will want more bees and queens in the spring."

Guarantee shipment to be made on time. **Free** circular explains, also gives prices on bees by Parcel Post, Nuclei, etc.

Prices f. o. b. Here, by Express.

1-lb. pkg. bees, $2.40; 25 or more... $2.16
2-lb. pkg. bees, 4.25; 25 or more... 3.83
3-lb. pkg. bees, 6.25; 25 or more... 5.62

Queens.

Untested, $1.50 each; 25 or more.... $1.35
Tested, $2.50 each; 25 or more...... 2.25
Select tested, each................. 3.00

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALALLEN, TEXAS
E. B. AULT, Prop.

Early-order Discounts will

Pay You to Buy Bee Supplies Now

Thirty-two years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri.

"Falcon"

I am a "Falcon" bee

I live in a ''Falcon'' hive.

I am gentle and contented. I love to work in my home because everything is just as I like it.

The hive body is well constructed; that is why your honey crop is always plentiful.

Our queen is a ''Falcon'' queen—she is a three-banded Italian of pure healthy stock.

We all agree that our colony is successful, but so are all the ''Falcon'' hives in our apiary.

The other bees tell me when we meet in the fields.

Send at once for a ''Falcon'' queen, a hive, or any bee-supplies you need. Don't delay. Spring will soon be here.

''Falcon'' bees and supplies always give the best results.

I know, because—I am a ''Falcon'' bee.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

"where the best beehives come from."

HERE THEY ARE, MR. BEEKEEPER, AT NEWARK

Wayne County, New York, ready to answer your call, the best of everything!!

Just Read This List

Lewis Beeware, Sections, Shipping Cases, Frames, Hives, Hershiser Wax Press, and other supplies.

Dadant's Unexcelled Foundation, all standard weights and sizes. Also the Electric Wire Imbedder.

Bingham Uncapping Knives, including steam-heated with oil stoves and generators.

Bingham Smokers, all sizes, with genuine leather bellows.

Root's Extractors, all sizes of hand and power Machines.

Bee Books written by all leading authors in beedom.

All Sizes of Friction-top Pails and also 60-pound Cans, new and second-hand. Also Cement-coated Nails for nailing beehives and supplies.

All-sized Spools of Tinned Wire, Bee Brushes, Feeders, Queen-rearing Cages, Bee Gloves, Capping Melters, and all practical supplies you will need.

A Market for your Honey or Wax, and a plant to render your Old Combs and Cappings.

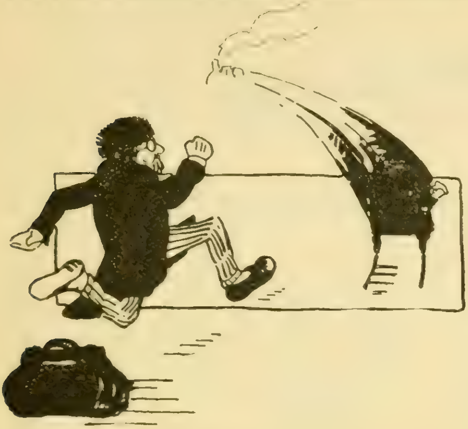
Over 1,000 Beekeepers took advantage of this Service Station at Newark in 1919, for the first time. Now *all together* for a greater 1920.

New Catalog Free, and Our Discounts Will Save You Money. Address

The Deroy Taylor Co., -:- Newark, Wayne Co., New York

He's Not—Around the Office

quick or it wouldn't be any use to send anythin but a coffin. He was brought back in a automobile at 5 a. m., madder 'n a wet hen—mostly at the Erie railroad. He hurried off a day message to the dean of the agricultural



It aint the train as is mad.

school at Alfred, N. Y., tellin him how it was he had to miss his appointment, and then went home to bed. Two days later he got a letter from the agricultural school dean at Alfred sayin his date there was Feb. 21 instead of Jan. 21, and he had time to make it yet if he'd hurry. The next week he started for a beekeepers' meetin in New Jersey

(*Continued on page* 189.)

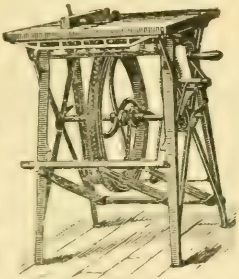
BARNES'
Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS



Dr. J. H. Black, Ft. Deposit, Ala.

Breeder of

Three-band Italian Queens

These queens are as good as can be bad. They must be purely mated. Safe arrival guaranteed in United States and Canada.

Untested queens - - - $1.25; 12, $12.00
Select untested queens 1.50; 12, 15.00

Dr. J. H. Black, Ft. Deposit, Ala.

BEE SUPPLIES IN DIXIE

Dependable Goods with prompt service. Save time and transportation costs.

L. W. Crovatt, Savannah, Ga
Box 134.

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service

BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway,

If you have not received 1920 catalog send name at once.

HYBRID POTATO SEED

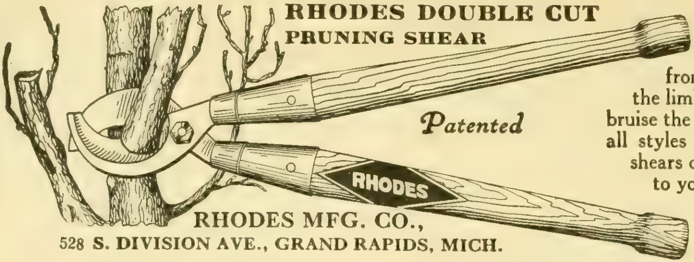
Every seed will produce a new VARIETY of potato, some white and some red, some early and some late, no two alike, 100 or more seeds in each package. One package and three months' subscription to our Magazine, "Special Crops," $1.00.

Address
PUBLISHER OF SPECIAL CROPS, SKANEATELES, N. Y.

BEEKEEPERS' SUPPLIES
QUALITY AND SERVICE

Now is the time to order your season's supply of Bee Material so as to have them ready for the honey flow. For lack of hives and other goods, you cannot afford to let your bees fly away. *Bees are valuable.* We have every thing required for practical beekeeping. Our goods for Ideal of quality, quality of workmanship. Our 1920 catalog is now ready to send out; send for one. It is full of good stuff.

AUGUST LOTZ COMPANY -:- BOYD, WISCONSIN



RHODES DOUBLE CUT
PRUNING SHEAR

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.

BANKING BY MAIL AT 4%

BANKING BY MAIL at 4 per cent with this old established bank is perhaps easier than you realize.

Send your first deposit TODAY and we will mail your passbook, showing the amount of your deposit, and a supply of deposit slips. Detailed information on request. Safe—Convenient—Profitable.

THE SAVINGS DEPOSIT BANK CO.
A. T. SPITZER, Pres.
E. R. ROOT, Vice Pres. E. B. SPITZER, Cash.
MEDINA, OHIO

Central West Beekeepers

DON'T WAIT! ORDER NOW!

Spring is almost here. You can't afford to put off ordering your supplies until you need them. It will pay you to

BUY THEM NOW

Have you received our catalog? We have one for you. Send for it and order from us. Root goods are the best goods in the world, and our service is unsurpassed. We can help you with your beekeeping problems, too.

The A. I. Root Co. of Iowa Council Bluffs, Iowa

He's Not—Around the Office

just one month late. I ain't commentin any, and there ain't no moral to this. E. R. Root's morals run in another direction than arrivin sure and before the whistle blows.

* * *

Mell Pritchard our skunkologist deserted us for Californy about a month ago and was praps goin out there to stay and raise queens and cure his asmy. He's home agin likin Californy climate about as much as he likes a skunk as what doesn't play accordin to his own prescribed odorless rules when histin him aloft by the tail. He got asmy out there about like a cow with a apple stuck in her eesofagus and that's worse'n he had it here. We are all glad

(*Continued on page* 191.)

WHEN YOU THINK of BEEKEEPERS' SUPPLIES
THINK OF INDIANAPOLIS
We carry a complete line of Root's goods and we solicit your trade. Our slogan, courteous treatment and prompt service. Catalog for the asking.
INDIANAPOLIS BRANCH
The A. I. Root Co. 873 Massachusetts Ave.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping-boxes, and three-frame nucleus colonies.
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Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, $1,00; Tested, $1.50. Nucleus, $2 per frame, queen extra.
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PATENTS Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.
Chas, J. Williamson, McLachlan Building,
WASHINGTON, D. C.

BACK NUMBERS OF GLEANINGS—A FEW BARGAINS LEFT IN VERY LOW-PRICED BEEKEEPERS' READING.

At 50c a year, we still have single copies complete for the years 1874, '76, '91 to '99, and '04 and '10. No other complete years left, and no unbound copies of the last three years left.

For a few days longer we will continue our great offer of this very best of beekeeping reading, namely, 50 copies for $1.00, all of different dates, but of no particular year or month. But selection will be made from the years the purchaser may designate just so far as this is possible. Address
Gleanings in Bee Culture, Medina, O.

QUEENS.—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, $2.00; six, $9.00; twelve, $16.80. After June 1, one, $1.50; six, $8.00; twelve, $14.00. Select tested, $3.00 each. Write for prices per hundred. Descriptive circular free.
Hardin S. Foster, Dept. G, Columbia, Tenn.

SAY, FELLOWS! Have you got the very yellowest bees? If you think so won't you please tell me your name and address?
Wildflower Apiaries, Trust Bldg., Little Rock, Ark.

PACKAGE BEES
ITALIAN QUEENS
Dependable Quality
Prompt Service
2-lb. pkg. bees, $4.65. 3-lb. pkg. bees, $6.65; untested queen, $1.35; select untested, $1.65; tested, $2.50. Terms: 25 per cent with order, balance ten days before delivery.
E. A. HARRIS, ALBANY, ALA.

3-Banded Italian Queens
MAY THE FIRST TO JULY THE FIRST
Untested - - 1, $1.50 12, $13.00
Tested - - - 1, $2.50 12, $25.00
H. L. Murry -:- -:- Soso, Mississippi

Have You Received Our 1920 Catalog?
If not drop us a Postal at once. We manufacture
BEEHIVES. BEEKEEPERS' SUPPLIES
MILLER'S CALIFORNIA FOUNDATION
Send us your wax and slumgum
Miller Box Mfg. Co. -:- 201-233 N. Ave. 18 -:- Los Angeles, Calif.

Spring Will Be Here Before We Know It and It Will Not Be Long Before We See the First Robin

Then everyone will begin to send in their orders for supplies.

Why not order now, receive more attention and materially aid us.

We are all stocked up and can fill your orders for anything you may need.

"Don't put off 'til tomorrow what can be done today"

Order now.

Are You Going to Syracuse for Supplies?

Veils
Smokers
Tools
Hives
Supers
Sections
Foundation
Extractors

Look over your supplies and send in your order to

We
S atisfy
Y our
R equirements
A nd you can
C ount
U s prepared for
S ervice
E very time.

F. A. Salisbury, 1631 W. Genesee St., Syracuse, N. Y.

He's Not—Around the Office

hes home for hes a philosofer. He and poor old demized M.-A.-O. are great friends, and we will try to find out about both of em later and report what they are thinkin. If I could only get M.-A.-O. to mollify hisself and his language and make up with the Roots again. I wish he would write hisself. Lots write and ask what's become of him. I'll get Mell to try to meller him.

QUEENS THAT WILL PLEASE

Queens that are bred for Business, Farmer's Imported Stock, the very best for Honey-Gathering and Gentleness. They are not given to swarming and are Highly Resistant to Disease. They are Hardy, Long-lived. We are now booking orders for April to October. Untested Queens, $1.50 each; $7.50 for six. We Guarantee pure mating, safe arrival, and perfect satisfaction. Write for Circular,

THE FARMER APIARIES, RAMER, ALA.

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Get our big discount
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132 Grand Ave. Kansas City, Mo.

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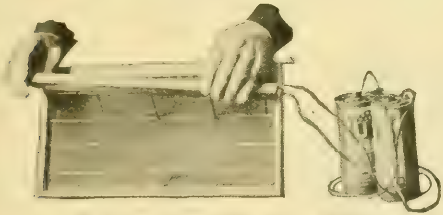

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Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers Hamilton, Ills.

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Mr. Beekeeper and anticipate your needs for the coming season and order early. Root's goods in stock at factory prices. Send for 1920 catalog.

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AM BOOKING ORDERS NOW for

1920 QUEENS

Untested - - $1.50 each; 25 or more, $1.35
Tested - - - 2.50 each; 25 or more, 2.25
Select tested, each - - - - - - 3.00

Limited amount of bees for early shipment. My descriptive circular tells about it. Write me.

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Florida Queens
and Bees

I will be fully ready to begin shipping bees and queens by April the 1st from my very best Italian stock at these prices: Two-frame nucleus with untested queen, $6.00. Untested queens, $1.50; tested, $2.00.

Beekeepers' Supplies

I have a large and complete stock and prices are right. Get prices of my Cypress hives and hive parts, made of good soft Southern Cypress.

Dixie Beekeeper

This monthly publication deals with beekeeping and Dixie for beekeeping.

A sample copy free

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850,000 GRAPE-VINES

69 varieties. Also Small Fruits, Trees, etc. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 25c. Descriptive catalog free. LEWIS ROESCH, Box L, Fredonia, N.Y

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Our stock is hand selected early in the fall—hand butted and tipped and hand shelled. Every ear we sell comes from fields making 60 bu. or more per acre. Let us increase **your** yield. We guarantee satisfaction. Write for samples and our **Big Catalog FREE.** Write us today.

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KELLOGGS
PEDIGREE STRAWBERRIES
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FREE

Kellogg's 1920 Strawberry Book

BEEKEEPERS—Write today for a copy of our valuable strawberry book and learn how easily and quickly you can increase your profits by combining Kellogg Strawberries with your bees. Each makes the other more profitable. This book pictures in colors and tells all about the world's latest and most wonderful strawberries, – Kellogg's Big Four and Big Late, Kellogg's New-Race, Kellogg's Everbearers,—also Kellogg Strawberry Gardens, including the world-famed

Kellogg's Everbearing Strawberry Garden

In thousands of homes throughout the country this garden is constantly reducing the H. C. L. and contributing substantial cash profits besides. It will do this, and even more, for you, because it blossoms and fruits almost continuously from June to November and its blossoms contain an abundance of honey-building material of which bees are particularly fond. The rapidly increasing demand for both strawberries and honey and the high prices of these foods, assure you at all times a ready market and big profits.

SEND TODAY FOR OUR FREE BOOK—Learn of the big profits others are making and put this big money-making combination to work for yourself this season. Your name and address written plainly will bring you this valuable book at once FREE AND POSTPAID.

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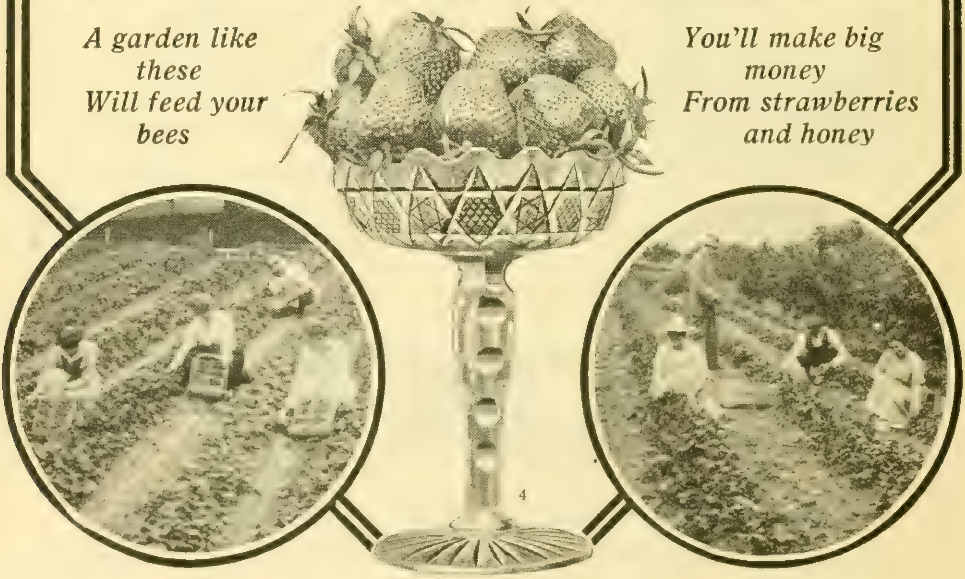
A garden like these Will feed your bees

You'll make big money From strawberries and honey



WE WILL TREAT YOU EQUALLY WELL

Mohawk, N. Y.
Dec. 30, 1919

The A. I. Root Co.,
Medina, Ohio.

Gentlemen: I have dealt with the Roots for 23 years, and know that honesty and prompt answers are what have made the Root Company what it is today, with good supplies for proof of value received.

One time I sent an order by a neighbor, and he sent 3c over, but the thought of 3c was too much for The A. I. R. Co. to pocket; so they used 2c and an envelope and a slip with the statement to return the 3c. Hats off to the A. I. R. Co.

[Signed] R. C. Morts.

THE A. I. ROOT CO., MEDINA, OHIO

A WORD TO THE WISE

Be on your guard for freight delays early this season.
Uncle Sam is trying to move the 1919 grain crop.
Only closed cars are taken for this project.
Beekeepers' supplies are shipped in closed cars.
This portends delays in securing your "Beeware."
Early orders are likely to get through promptly.
Better write your "Beeware" distributor today.
Don't lose a honey crop because of freight delays.

"BEEWARE" INSURANCE

Did you read in the January bee journals about the seven ''Signs of Progress'' embodied in Lewis ''Beeware'' this year?

''Beeware'' users will have assurance of all the honey in their locality this year. The ''Beeware'' sign stands for quality, workmanship, and Lewis service.

The ''Beeware'' distributor whose name is on the front page of your catalog can give you all that ''Beeware'' stands for. Write him!

If you have no "Beeware" catalog, a penny postal brings one.

Look for

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WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. U S A
MAKES THE FINEST.

This Mark

Branches and Distributors Everywhere

G. B. LEWIS COMPANY

Makers of "Beeware"

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College

Gleanings in Bee Culture

The Steelman Triplets, of Eaglette, Ark., Disposing of Daddy's Unfinished Sections

VOL. XLVIII April, 1920 NUMBER 4

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BEEKEEPERS' SUPPLIES

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Send
us your wax and
slumgum.

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LOS ANGELES, CALIFORNIA

Tin Containers

A Complete Line. Your Orders Solicited for

Friction-Top Cans and Pails

Five-gallon Square Cans
with Screw or Solder Cap

Packers' Cans
Open Top or Hole and Cap Styles

Wax Sealing Preserving Cans

Unexcelled manufacturing and shipping facilities.

W. W. Boyer & Co., Inc.
Baltimore, Maryland

"GRIGGS SAVES YOU FREIGHT"

TOLEDO

We know you are not the fellow who waits until the last minute before ordering his supplies.

We have large stocks of new goods to rush to you the minute your order arrives.

Send us list of goods wanted at once and receive our prices.

Those 60-lb. Cans will soon be gone; better hurry your order in at once. Two men took a car load.

White Clover Honey

Can use limited amount of White Clover Honey if price is in line.

Free catalog of BEE SUPPLIES for the asking.

Queens, Bees

We are booking orders now for Our Select Stock of both Golden and Leather Colored Italian Bees and Queens. This stock has been bred with careful attention given to Honey-gathering Qualities and Gentleness.

Write us your wants and get our prices. Satisfaction guaranteed.

Beeswax

We are in the market for large quantities of Beeswax. Write us as to what you have to offer and prices asked. We pay top market prices, having a good outlet for select Wax—nice and clean. We pay Spot Cash or will exchange for supplies.

"Griggs Saves You Freight"

GRIGGS BROS. CO.
DEPT. 25 TOLEDO, OHIO

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Editorial Staff

E. R. ROOT Editor	A. I. ROOT Editor Home Dept.	IONA FOWLS Assistant Editor	H. G. ROWE Managing Editor

Order Your Bee Supplies Now

NOW is the time to check up on your hives and accessories to make sure that everything is complete and in perfect condition for the coming season. Our complete line of Bee Supplies includes everything needed by the modern Beekeeper. Besides our own exclusive articles, we are distributors for the famous Lewis Beeware line, and dealers in Root's Extractors and Smokers, and Dadant's Foundations. Orders placed now can be filled promptly. Prices on many articles are sure to advance within the next few months. Send for our large 1920 Catalog today.

Beeswax Rendered from Old Combs

WE pay you the highest market price for rendered wax, less 5 cents per pound rendering charge. Our special hydraulic steam wax press gets the very last drop of wax from old combs and cappings assuring you maximum profit on them. Write for full particulars.

Best Prices Paid for Honey

Tin Rabbets,
Hives, all sorts
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Root's Smokers
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Division Board

Wax Extractors

Metal Spaces
Uncapping Knives
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Honey Boards

Covers for Hives
Observation Hives

SEND us samples of your honey and we will quote you a price equal or better than that of any other concern. We buy and sell both comb and extracted honey. Cash remitted in full the same day shipment is received.

Send for Our Large New 1920 Catalog

THIS new catalog contains over 40 pages of every variety of Beekeepers' Supplies, including all the latest and most improved devices. It is really a valuable reference book on beekeeping accessories. -:- -:- -:- -:- -:- -:-

THE FRED W. MUTH CO.
"THE BUSY BEE MEN"
CINCINNATI, O

BEESWAX WANTED

We require approximately 50 tons of beeswax during the next three months, to take care of the enormous demand for SUPERIOR FOUNDATION. We are paying highest cash prices, and an extra allowance of several cents per pound when exchanged for foundation, bee supplies, or honey cans. Write for prices and shipping tags, stating quantity.

SUPERIOR FOUNDATION

Get our prices on your foundation requirements for the season. We maintain the same high quality in every pound we manufacture. SUPERIOR FOUNDATION assures SUPERIOR RESULTS.

BEE SUPPLIES

We carry a complete stock of bee supplies and honey cans, and can fill your entire order. Prices on request.

Superior Honey Company -:- Ogden, Utah
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

BEE SUPPLIES BEE SUPPLIES

SERVICE & QUALITY

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog—better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & COMPANY

2146 CENTRAL AVE. CINCINNATI, OHIO

HONEY MARKETS

There has been little change in the honey market during the last month, altho there is a pronounced inactivity just at this time, March 20. The quotations below tell the situation.

U. S. Government Market Reports.

HONEY ARRIVALS, MARCH 1-15.

MEDINA, O.—1,100 pounds from Illinois, 40,800 pounds from New Mexico.

(Note: Arrivals include receipts during preceding 2 weeks, prices are for March 15 unless otherwise stated.)

SHIPPING POINT INFORMATION, MARCH 15.

LOS ANGELES, CALIF.—Demand and movement slightly improving, market steady, little change in prices. Carloads f. o. b.: Extracted, white orange blossom 18c; white sage, supplies very light, mostly 18c; extra light amber sage and light amber sage 17-17½c; light amber alfalfa, supplies very light, 15½c. Beeswax, demand and movement good, market strong, little change in prices, l. c. l. lots 40-42c. The generally dull market since the first of year shows better inquiry and some signs of recovery.

SAN FRANCISCO, CALIF.—Supplies very light, demand and movement very slow. Cash to producers: Light amber alfalfa 14-14½c, white orange blossom, supplies practically exhausted, 16c. Beeswax, supplies very light, 38-40c. The crop outlook in California this year is very unpromising, due to lack of rainfall.

BOSTON.—Supplies light, demand very limited, market dull. Sales by jobbers to grocers: Comb, New York and Vermont, best 33-37c per section, some light sections low as 29c. Extracted, California, light amber in 60-lb. cans 23c. Beeswax, supplies very light, no sales.

CHICAGO.—No carlot arrivals, supplies liberal, demand and movement slow, market steady. Sales to jobbers: Extracted, Idaho, Colorado, California, and Montana, white 18-20c, light amber 18c, dark amber 17c. Comb: No. 1, 24-section cases $6.75-7.00. Beeswax: Receipts moderate, supplies moderate, demand and movement moderate, market steady. Sales to jobbers: California, Idaho, Montana, Wisconsin, and Minnesota, light 40-43c, dark 34-40c.

CLEVELAND.—Demand and movement moderate, market weak. Sales to jobbers: Extracted, Western 60-lb. cans, white clover 19-20c, light amber 17-19c, white sage 21-23c. Dealers report offerings liberal with only fair moderate demand.

DENVER.—Since last report 12,200 lbs. extracted arrived. Supplies light, demand and movement moderate, market steady, no change in prices. Sales to jobbers: Comb, 24-section cases, No. 1, $6.75; No. 2, $6.30. Extracted: White 18½, light amber 17½c.

KANSAS CITY.—Supplies cleaning up, demand and movement good, market firm. Sales to jobbers: Comb, per 24-section flat case, Missouri, light $8.50-9.00, California and Colorado, alfalfa light $8.00. Extracted, California and Colorado, light amber 20-23c; mostly 22-23c per lb.

MINNEAPOLIS. — Supplies liberal, demand moderate for extracted, demand limited for comb, market steady. Sales direct to retailers: Comb, Western, No. 1 white, 24-section cases mostly $7.50, few $7.25. Extracted: Western, in 60-lb. cans, white 22c, light amber 20-21c.

NEW YORK.—No arrivals since last report. Practically no demand or movement, market very dull and weak. Sales to jobbers: Extracted, domestic supplies liberal, California, light amber alfalfa 14-16c, white orange blossom 17½-18c, amber sage 16-17c, New York sweet clover 16-17c Beeswax: No arrivals since last report, supplies liberal, demand and movement very slow, market dull and weak. Sales to jobbers: Ohio, light mostly 40c, dark mostly 38c.

ST. LOUIS.—Supplies moderate, demand and movement moderate, market steady. Sales to jobbers: Extracted, Southern, in cans light amber 14-15c, dark 13-14c. Comb, clover $7.00, light amber $5.50-6.50 per 24-section case. Beeswax: 39c per lb.

ST. PAUL.—Supplies moderate, demand and movement limited, market steady. Sales direct to retailers: Comb, Western, No. 1, white, 24-section case $7.25-7.50. Extracted, too few sales to establish market.

CINCINNATI.—No arrivals, practically no demand or movement, no jobbing sales reported. Beeswax, demand moderate, movement limited, market dull. Sales to jobbers: Average yellow 45-48c per lb.

[The market reporters of the large cities were asked by the Government officials to state their opinions as to the reasons for the present dullness in the honey market. The reasons generally given are as follows: The large amounts carried over from last year, the increased ease of obtaining sugar, the lack of the usual amount of export business, the high prices, and the liberal offer of Cuban honey at low prices.—Editor Gleanings.]

Special Foreign Quotations.

LIVERPOOL.—During the past month the honey market has been very slow, only retail sales being made. 130 barrels Chilian Pile No. 1 at 16-17c per lb; Pile No. 2 at 14-15c per pound. Other kinds are retailing at late rates. The beeswax market is also quiet. The value in American currency still remains about the same, 34-35c per pound.

Liverpool, England, Feb. 28. Taylor & Co.

Condition of Bees and Honey Prospects.

The following are the opinions of actual honey-producers thruout the country received during the last few days:

ARIZONA.—Bees wintered nicely, 10 per cent lost. Condition of colonies about normal. Condition of honey plants better than usual. Crop prospects are good.—W. I. Lively.

BRITISH COLUMBIA. — Bees wintered well, about 10 per cent lost. Condition of colonies very good. Condition of honey plants good. Crop prospects good.—W. J. Sheppard.

CALIFORNIA.—Bees wintered rather poorly, 10 to 30 per cent being lost. Present condition of colonies about normal. In northern California outlook is not promising; in southern California, normal with three more inches of rain.—A. E. Lusher.

CALIFORNIA.—Honey prospects are not bright. If we could have 5 to 6 inches more of rainfall, we might get half of a crop. There is no old stock on hand. Comb honey is bringing 45c retail.—M. H. Mendleson.

SOUTHERN CALIFORNIA. — Bees wintered fairly well, 20 per cent lost. Condition of colonies a little below normal. Honey plants in fair condition. Prospects of one-half a crop.—L. L. Andrews.

COLORADO.—All reports are very favorable in regard to the wintering of bees, the loss being less than five per cent. Present condition of colonies is as good as usual. Honey plants are in good condition; we should have a good crop.—J. A. Green.

FLORIDA.—Bees wintered not as well as usual. Present condition of colonies not as good as usual at this time of year. Early orange bloom frozen, maybe some later. The woods are so burned by cattle men that the gallberry is badly injured; also saw palmetto, to some extent. Crop prospect is not as good as usual.—Ward Lamkin.

FLORIDA.—Bees wintered poorly, 40 per cent lost. Condition of honey plants good. Crop prospects very good.—C. H. Clute.

IDAHO.—All reports good, loss 2 per cent. Condition of honey plants normal. Crop prospects appear good. E. F. Atwater.

ILLINOIS.—There will be at least a 25 per cent loss of colonies in wintering. Bees that were neglected will be below the normal condition for season. I fear the clover is badly killed and that we shall not get more than a half of a white honey crop.—A. L. Kildow.

INDIANA.—Bees wintered in cellar O. K.; outside bees probably suffer large losses and in very poor condition compared with last year. Crop prospects poor. No clover in sight.—E. S. Miller.

KANSAS.—Bees wintered very well, and colonies are in good condition. Honey plants are in good condition, and crop prospects in general are good.—A. D. Raffington.

MARYLAND. Bees wintered fairly well, 25 per cent being lost. Condition of colonies poorer than usual. Condition of honey plants is good. Crop prospects normal.—S. G. Crocker.

MASSACHUSETTS.—Too early in the spring to tell much about conditions, as there is so much snow that only the tops of the fence posts are yet in sight, so I am afraid many colonies will be lost. Honey plants will probably get a grand start, and we should get a good crop of honey.—O. M. Smith.

MINNESOTA.—Bees wintered poorly, about 25 per cent being lost. Present condition of colonies compared with the usual condition is very poor. Honey plants are in very good condition. Crop prospects are very good.—Chas. D. Blaker.

MISSOURI.—Bees wintered fairly well, three to five per cent being lost. Present condition of colonies very good for this time of year. Honey plants are in good condition, and crop prospects are good. —J. W. Romberger.

NEBRASKA.—Bees did not winter very well, about 33 per cent being lost. Condition of colonies unusually poor. Honey plants are in good condition and crop prospects are good.—F. J. Harris.

NEW JERSEY.—Too early to give an intelligent report.—Elmer G. Carr.

NEW YORK.—Bees wintered fairly well, about 25 per cent lost. Present condition of colonies poorer than usual. Honey plants are in good condition, and crop prospects good.—George H. Rea.

NEW YORK.—Bees have wintered well. Colonies are in pretty good condition. Condition of honey plants extra good. Crop prospect are good. —F. W. Lesser.

NEW YORK.—Bees wintered well in the cellar but very poorly outdoors, about 50 per cent being lost. Present condition of colonies is much poorer than usual. Condition of honey plants is good, and crop prospects are good. Adams & Myers.

OHIO.—Bees well protected have wintered fairly well; in unpacked hives nearly 50 per cent are lost. Condition of colonies very poor. Honey plants are in good condition. Crop prospects are very good. —Fred Leininger & Son.

OKLAHOMA.—Bees wintered only fairly, 10 per cent being lost. Present condition of colonies normal. Condition of honey plants is poor. Crop prospects are good.—C. F. Stiles.

PENNSYLVANIA.—Several beemen report 40 to 60 per cent loss in outdoor-wintered bees; some poor cellar wintering on account of poor stores. —Harry W. Beaver.

EAST TEXAS.—Winter losses greater than ever known before, from too much rain last fall, and lack of feeding. Honey plants are promising.—T. A. Bowden.

LOWER RIO GRANDE VALLEY, TEXAS.—Bees wintered well, only 10 per cent being lost. Honey plants are in good condition. Crop prospects very good.—J. Lynn Stephenson.

TEXAS.—Bees wintered very well. Crop prospects good.—J. N. Mayes.

UTAH.—Bees wintered normally, the loss of colonies being from 4 to 10 per cent. Present condition of colonies normal for season. Condition of honey plants good, and crop prospects are normal. —M. A. Gill.

WASHINGTON.—Bees along the coast wintered as well as usual; but east of mountains there will be a big loss. Crop prospects look good.—Geo. W. B. Saxton.

WISCONSIN.—Bees have wintered very well. Colonies are in much better condition than at same time last year. Honey plants are in fine condition. Beekeepers expect large crop.—H. F. Wilson.

Advertisements Received too Late to Classify.

FOR SALE.—15 new 4 x 5 x 1⅜ comb-honey supers. Carver R. Smith, N. Manchester, Ind.

FOR SALE.—10-acre fruit ranch in the heart of irrigated district near Santa Fe railroad. Alfalfa and sweet-clover bee pastures. Additional land adjoining for farming can be purchased. 100 colonies of bees, no disease. Seven-room modern-built house. Good roads, church, and school. Will sell or exchange. Flatjo Apiaries, Springer, New Mexico.

FOR SALE.—One Todd check protector. Limit $500. Reasonable price.
H. F. Simons, 5829 Indiana Ave., Chicago, Ills.

FOR SALE.—My three-banded Italians in brand-new Root ten-frame hives, at $12.00 per colony. They are dirt cheap.
Theodore N. Ross, Nashville, N. C.

FOR SALE.—62 Buckeye hives, slightly used, freshly painted, white, complete, except frames, $4.10 each f. o. b. Ashtabula, Ohio. E. G. Baldwin, c o Griswold Greenhouse Co., Ashtabula, Ohio.

FOR SALE.—April delivery by express in 3-pound combless packages, 60 lbs., black bees with black queen at $5.25 per package. Good honey-gatherers and free from disease.
F. M. Baldwin, Mt. Vernon, Ga.

FOR SALE.—25 chaff hives, 20 deep extracting bodies, 25 shallow supers, all 10-frame and in No. 1 condition. A part of them have never been used. For particulars and low prices, write
Jay Fleming, 403 A. St., Lorain, Ohio.

FOR SALE.—8-frame colonies Italian bees, without hives, $8.00 each; in one-story single-wall new hives, $10.00 each. Standard self-spacing, full-depth, Hoffman frames. Nearly all wired. Bees free from disease.
Wilmer Clarke, Earlville, N. Y.

ROOT QUEENS.—Untested: May, $3.00; June, $2.50; July to Oct., $2.00. Select untested: May, $3.50; June, $3.00; July to Oct., $2.50. Tested, May, $4.00; June $3.50; July to Oct., $3.00. Select tested: May, $4.50; June, $4.00; July to Oct., $3.50. Quantity discounts: 12 queens, 10 per cent discount; 25 queens, 15; 50 queens, 20; 100 queens, 25. The A. I. Root Co., Medina, Ohio.

FOR SALE.—New supers, nailed and painted, with sections and full sheets foundation, $1.60 and $1.80; super springs, 60c per 100; Alley's improved queen and drone traps, 40c; Lewis No. 1 plain 4¼ sections, $4.50 per 500; fences, $2.00 per 100; separators, 80c per 100; section-holders, $1.00 per 100; foundation-fasteners with lamp, 50c; Globe bee veils, 20c; 24-lb. shipping cases, 5-, 10-, and 60-lb. tins, and honey bottles. Special prices on large lots. I can use a few 60-lb. tins of honey.
Edw. A. Winkler, Joliet, Ills.

ADMINISTRATOR'S SALE.—To close W. D. Soper's estate. Following goods only left on hand: 60 10-frame supers, for 4¼ beeway sections, 75c each; 5 8-frame supers for 4¼ beeway sections. 70c; 300 section holders for 4¼ x 1⅞ beeway sections, 2½c; 500 section-holders for 4¼ x 1½ plain sections, 2c; 200 fences for 4¼ x 1½ plain sections, 3c; 200 fences for 4 x 5 plain sections, 3c; 100 slotted separators for 4¼ beeway sections, 1c; 3 Standard smokers, $1.00; 1 Bingham smoker, 75c. These goods are all brand-new. Nina V. Cuff, Admx., 132 Chittock Ave., Jackson, Mich.

WANTED.—Swedish young man, 26 years, landing in New York about the last day of March, wants work with some extensive apiarist as helper to gain experience. Go anywhere. Some experience. Been in U. S. A. from June, 1912, to August, 1914.
H. B. N., c o Gleanings, Medina, Ohio.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

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H. G. ROWE, Mng. Editor

Sworn to and subscribed before me this 22nd day of April, 1920. H. C. WEST, Notary Public.

QUEENS AND BEES

WHY ARE WE THE LARGEST BREEDERS OF ITALIAN QUEENS IN THE WORLD?

You can't buy superior stock at any price. Safe arrival and satisfaction in every respect guaranteed.

UNTESTED QUEENS

To June 15th		After June 15th	
1	$1.50	1	$1.25
12 or more	1.25	12 or more	1.00

TESTED QUEENS

To June 15th	$3.00	After June 15th	$2.00

BEES

1-pound packages	$3.00	2-pound packages	$5.50

NUCLEI

1-frame	$4.00	2-frame	$7.00	3-frame	$9.50

No queens included at above prices.

Nuclei are on good combs, full of brood with plenty of bees.

FULL COLONIES

We can furnish, and can ship on date specified, full colonies of bees in new hives, good comb, and good strong colonies with **Tested Queens:**

8-frame	$18.00	10-frame	$20.00

DR. MILLER'S QUEENS

Let's make this a Miller queen year. Dr. Miller has furnished us breeders from his apiaries, and we are the only ones that he furnishes breeders to. In these queens you get the fruits of the foremost beekeeper of the world. We pay Dr. Miller a Royalty on all queens sold.

To June 15th		After June 15th	
1	$2.00	1	$1.50
12 or more, each	1.60	12 or more, each	1.25

We carry a full line of Root's supplies, including the new Root-Weed foundation, Prompt Service.

THE STOVER APIARIES

Successors to
THE PENN COMPANY
Penn, Miss.

MAYHEW, MISS.

Foresight

Is Better Than Hindsight

¶ Do you recall in times past that you have promised yourself to "buy early" the next season?

¶ Haven't there been instances where it would have been money in your pocket had you been ready for the bees?

¶ Let us suggest that you buy now for this season---and make it Root's goods. We sell them in Michigan.

Beeswax wanted. Send for our 1920 catalog.

M. H. Hunt & Son
510 North Cedar Street
Lansing, Michigan

A "Beeware" Line From Mill to You

Up in the north woods snow and ice are melting.
April's sun is turning rivulets into torrents.
Huge pine logs are floating down to the mills.
There they are cut into clean, white lumber.
Once "monarchs of the forest"---now Lewis "Beeware."

Read your "Beeware" catalog cover. Your distributor's name is there.
Write him today. His stock is ready.

Southern Beekeepers

Don't forget your "Beeware" branch, 10-12 Front Street, Memphis, Tennessee. Also, we are glad to announce a new distributor at Charlestown, West Virginia, The Kanawha Seed Company, 617 Virginia Street.

Look for

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. U S A
MAKES THE FINEST.

This Mark

Have you read "How To Manage Bees In Spring"?
It costs 5c. All 14 booklets mailed for 70c.

G. B. LEWIS COMPANY

Branches and Distributors Everywhere

WATERTOWN WISCONSIN

GLEANINGS IN BEE CULTURE

APRIL, 1920

The New League Again.

SINCE OUR LAST issue went to press there was held at Salt Lake, Utah, Feb. 20 and 21, an impromptu or informal meeting of the representatives of some of the California and Rocky Mountain co-operative honey exchanges, to discuss ways and means whereby all the honey of the districts named could be gathered and sold by a central agency, such agency to have headquarters at a central depot and sell the honey at the best price the market could afford. There were present from these exchanges Chas. B. Justice, Chas. Orr, and E. W. Horn, of the California Exchange; P. S. Farrell and C. E. Dibble, of the Idaho-Oregon Exchange; B. F. Hastings, of the Colorado Honey Producers' Association, and a committee from the Utah Beekeepers' Association, not yet organized, but which has already taken the preliminary steps to unite with the organization under Mr. Farrell. These various representatives met and passed a resolution favoring some agency plan that would not only stabilize the western market on honey, but prevent, as far as possible, the indiscriminate cutting of prices by independent and unorganized beekeepers.

As was naturally to be expected, there were some at Salt Lake who felt that a general marketing scheme for the whole West would be too big to be workable; that the alfalfa of the Rockies was much superior to the alfalfa of California; that in general the honeys of California were distinctly different from those of the Rockies.

On March 9, 10, and 11 there was held at Buffalo another and what was declared the final meeting of the National Beekeepers' Association. On the last day a resolution was presented and adopted, merging the old National into the American Honey Producers' League—the organization that was projected at Kansas City on Jan. 6 and 7 last. For fuller particulars see page 233 of the department Just News, where will be found the letters of three prominent beekeepers reporting on the new League as endorsed at Buffalo.

What will be the future of the League will depend on how well the beekeepers of the West (and in a larger way of the East) will take hold of it. A good start has been made at Buffalo. No organization of the kind outlined at Kansas City, Salt Lake, or Buffalo, can succeed if there are local jealousies or political wire-pullings. It is sincerely to be hoped there will be none. "Politics" in bee associations? Yes, sir. There always has been a lot of it in the past, and there will be in the future, unless beekeepers will be broad enough to sink local jealousies for the best good of all.

Gleanings stands ready to support any organization that is for the good of beekeepers. If the new League can stabilize the market and better beekeeping conditions, we are for it heart and soul. Something of the kind is needed, and Gleanings will do its part.

* * *

Getting Brood to the Top-bars, Again.

IN OUR February issue, page 79, we omitted one important factor in getting brood to the top-bars—namely, the factor of top protection. No matter how well frames may be wired, nor how well the foundation is reinforced against stretching, the queen may or may not go above the two-inch space below the top-bar if the top of the hive does not have a warm cover. Where there is a board of only a single thickness, a great deal of cold, if the weather is chilly, can penetrate during the night. The queen is not likely to stretch her brood up into a cold area. If she does not occupy the space, the bees will be likely to fill it later on with honey. In the case of a two-story hive, when the frames are properly wired we should expect the brood to go clear up to the top-bar in the lower story, but not in the upper story if it has an ordinary single-board cover.

The moral of this whole thing is, a hive should have a warm top, and frames so wired that neither the combs nor the foundation will stretch.

* * *

THE TORONTO Beekeepers' Association has recommended to the postoffice departments of Canada and the United States the extension of the limits in weight of parcel post between the two countries so that live bees in packages of up to 11 lbs. weight may be received into Canada, and that all such shipments be handled by "outside mail" so that the bees be not smothered. The queen and bee breeders of this country should urgently write the Postoffice Department at Washington asking that the recommendation be adopted.

The Onward March of Sweet Clover in the Great West.

IF THE EDITOR had been told a decade ago that sweet clover, the much-despised and hated so-called "weed" of the early days, would today run neck and neck with alfalfa, both in acreage and honey production in some parts of the great West, he would have said that that it was impossible. Yet that is precisely what some reliable beekeepers of wide knowledge and experience have told us. Nay, more; we have seen within the last 30 days, with our own eyes, that the statement for some localities is quite within the range of possibility. The day has gone by when the beekeeper was the only apologist for this plant. Today the experiment stations, the extension men, and even the ranchers and farmers, are all alike extolling its praises, and well they may; for sweet clover has redeemed and shown the possibilities of lands that hitherto have been worthless—lands that are bringing in price almost as much as alfalfa land. In spite of this showing, there is a professor who said that sweet clover was nothing but a noxious weed. That is about as much as some professors know. If they will go west their eyes will be opened.

It is not true that in **all** localities sweet clover ranks with alfalfa in honey production. In some places, on account of its limited area, it does little more than to build up colonies so that when alfalfa is at its best the bees are strong enough to get the honey; but even then it is more than welcome; and without it, in many instances, the production of alfalfa would be at a low ebb.

But where the plant is not valued for bees, the rancher knows it will start on land where alfalfa could not catch. After a good growth of the sweet clover, alfalfa may take root, where its growth before would have been difficult if not impossible. More and more the farmers (thanks to the extension men) are learning that, as a soil-improver, it has no equal, and they are putting it in. Moreover, it is self-seeding along the streams, irrigating-ditches, and roadsides, where it is tracked in from other localities.

The way it has been spreading all over the Arkansas Valley and the Rocky Mountain districts, is beyond all belief. It is amazing. Along with it has grown new bee territory that is not overstocked, and it will be a long time before it ever can be. Said a beekeeper of 1,500 colonies, who has kept bees all over the West and in California, "Some of the best bee territory in the whole of the United States is in South Dakota, where sweet clover has gotten under such headway." Then he added, with a twinkle, "If I had 10,000 colonies I would scatter them on some of these sweet-clover and alfalfa ranges in the Arkansas Valley running thru Kansas and Nebraska." We would give the name of this man, but fear that he would be flooded with questions. He ought to know what he is talking about, for he has kept bees in all of the good locations in the Rockies and in California, and yet proposes to go on the "dry farming" territory where sweet clover thrives in the middle West—not because it is better bee territory than the irrigated regions, but because it is open with few or no bees.

"Dry farming" territory—what do we mean by that term? The phrase is applied to territory in South Dakota, Nebraska, and Kansas where the rainfall is very limited, the rains coming in March or April, quite heavily sometimes, and then no more rain for a year. The soil is deep and rich, and holds moisture for a long time. While dry-farming land does not yield as rank a growth of alfalfa and sweet clover as does the irrigated country, it saves all the expense of irrigating-ditches, "water-rights," and the enormous first cost and upkeep of water-pipe that often extends for miles and miles from rivers or the melting snows of the mountains. The heavy rains of one month in southern Kansas, for example, put the land in shape to grow alfalfa on the lowlands, and sweet clover on the uplands for the other eleven months. Four or five cuttings of alfalfa are secured, we are told. Sweet clover is not cut for hay in most localities, but is pastured for cattle.

Acre for acre, alfalfa, when in full bloom, will yield far more honey than sweet clover; but, unfortunately, the former is cut just as it gets nicely into bloom, while the latter, in the majority of cases, is not cut but pastured, and the bees work on it continuously. It is for this reason that in many localities sweet clover yields as much honey as alfalfa. In very many parts of the West there is just enough of sweet clover mixed with the alfalfa to give it that beautiful cinnamon or vanilla flavor so prized by many. Still again, it is valuable only for brood-rearing.

The time may come when sweet clover will be the predominant honey of the West. It is generally believed that the plant has made only a start. When it gets thoroly established, then we may see an era of beekeeping the like of which was never known before. The great States of Wyoming and Montana, as well as parts of Nevada, are just opening up to bees. Sweet clover is fast getting a foothold; tho, if irrigated, it is being replaced by the more valuable plant alfalfa. If the latter can not grow, sweet clover clings on.

Elsewhere we have spoken of the problem of overstocking, which we find so rampant in parts of the West. If some of these overstockers could only **know** that there is plenty of bee range open, and would take a little pains to find where these ranges are, carloads of honey could be saved and a world of ill feeling avoided. If you can't find these ranges, write to the editor when he gets home; but please tell to what part of the West you wish to go.

ARE BEEKEEPERS ASLEEP?

What the U. S. Weather Bureau Can Tell Them About the Cellar Wintering of Bees

By C. W. Aeppler

OUR bees are wintered in the cellar, not because we consider it the best method of wintering, but because of circumstantial necessity.

No matter what one does, there is little use in doing it, unless it is done well. Cellar wintering of bees involves many problams that must be solved if the beekeeper is to be successful. Many beekeepers count the number of their colonies in the spring by the number of queens that are alive, instead of by comparison with a first-class normal colony well supplied with worker bees.

There are a great many things deemed necessary for successful cellar wintering. Perhaps most of them are necessary. This article deals with just one of these. To go into details on all of these supposed essentials for successful wintering would require many more articles like this one.

Big Problem for Cellar Winterers.

This one essential is this: When to put your bees in the cellar, and when to take them out.

Dr. Miller says, "Cellar your bees the day after they take their last flight before winter." But the trouble is that the beekeeper is uncertain as to when this last flight will be.

Every fall the problem confronts him: "When shall I put the bees in the cellar? Shall I put them in now or shall I wait for another flight?" It certainly is a grave and important question. When bees are subjected to severe freezing weather and enjoy no cleansing flight, the result may be disastrous. Certainly they will not be as quiet in the cellar because of accumulated feces. Dysentery may result, which might not have resulted had they enjoyed a cleansing flight the day before they were put in the cellar. Again, continued exposure to freezing weather is a drain on the stores of each colony, which means dollars and cents to the beekeeper.

Solution of Problem.

As big as the problem is, and as uncertain as it may seem, there is, however, one agency that the beekeeper can fall back on. This is the U. S. Weather Bureau. How often have we heard people laugh about the "weather man" and jest about his supposed guesses at the weather, and describe him as "way off" when he predicted rain and none fell to quench the thirsty pasture lands! These same individuals do not stop to consider that the Weather Bureau is forecasting for a relatively large area, and while the forecast may be verified in most sections, it did not materialize in certain small sections. Again, forecasts are made for 24 hours in advance, and local conditions may affect the forecast, whereas the forecast for the area is exactly correct. It is not my purpose to dwell on the methods used by the Weather Bureau, as that involves several articles as long as this one; the reader can easily determine this for himself from any bureau in this country.

While still a student in college I became much interested in weather forecasting in connection with beekeeping, thru a course I took under the direction of one of Uncle Sam's trained forecasters. I began to keep tab on the weather and during the past few years have kept these data mainly for my own observation in order to ascertain how it would affect beekeeping. At first I did not realize, perhaps, what a great thing it is; but the whole matter has worked out so well during the past seven years that I consider it safe to let others in on the secret.

Needless to say, latitude is the determining factor, and anyone farther north or south must slightly adjust their dates accordingly.

Times of Flight in Fall and Spring.

From the graph accompanying this article, it can be seen that bees had a flight at this latitude, in this part of the country, every year in the past 10 years between the dates of Nov. 10 and 20, except in 1910. In 1910 bees did not have a flight after the last week in October.

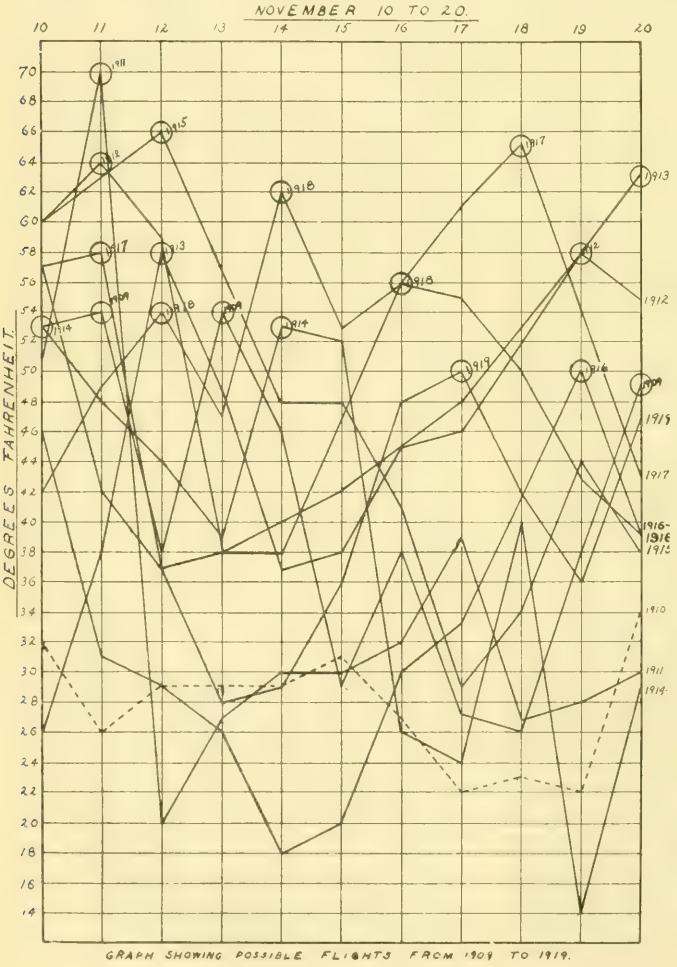
In 1911 the temperature was 70 degrees on the 11th of November. In 1912 there were two periods, one on Nov. 11 and again Nov. 19. In 1913 it was similar. In 1914 bees flew on the 10th and again on the 14th; in 1915 between the 10th and 12th. In 1916 the bees flew well on the 19th, the temperature being only 50 degrees, but very little wind. In 1917 the bees flew on the 11th and had a most wonderful flight on the 18th, the temperature being 65 degrees at noon. In 1918 there was a possibility of flight on Nov. 12, but they flew very little because of a brisk west wind. However, on Nov. 16 they had a good flight and were put in the cellar on the 18th. In 1919 temperatures remained very low the first half of November. However, on the 17th with a temperature of 50 degrees and 2½ hours of sunshine in the middle of the day, the bees had a good cleansing flight. There was scarcely any wind at noon. We recorded a temperature of 49 degrees on Nov. 22nd. It was well that the bees were put in the cellar on the 19th, as a brisk wind would have prevented their flying.

It is my experience that 50 degrees is the basis to go by. Bees will fly well this late in the year at 48 degrees, provided there is practically no wind, and the day is very clear. Also, bees will fly better at 52 degrees with a slight wind than at 50 degrees and almost no wind. The condition of cloudiness has much to do with it, also.

The outstanding feature of the proposition is this: Every year during the month of November (1910 excepted) during the past 10 years our bees have had a flight before being put in the cellar. I did not keep temperature figures previous to 1914, but I do know that the bees had their flight. Also, in order to make the graph as uniform as possible, I am taking the records of the Weather Bureau as a basis, as my temperature records vary slightly from theirs, probably because of a less efficient thermometer, mine reading slightly higher. This period I have found to be between Nov. 10th and 20th. However, the rule may fail, say once in 10 years. Therefore, if the bees would secure a good flight between the 5th and 10th of November, I would not wait for another chance. But inasmuch as the rule given has failed only once in 10 years (in 1910), it seems safe to say that a beekeeper can expect to secure a flight for his bees some time between Nov. 5 and 20 every year in this section of the country.

How to Use the Weather Bureau.

Now, supposing your bees secured no flight from Nov. 1 to 15 don't shudder and fret about it. From the first of November and until the bees are in the cellar, it is advisable to be in constant communication with the nearest U. S. Weather Bureau. The service is so liberal that the forecaster will write you a personal letter every day for two weeks if necessary. However, this may never be necessary, for he can forecast the weather with certainty farther ahead than 24 hours. In the first place, he has climatological data covering the past 46 years and can determine in how many years a temperature of 50 degrees and over has occurred on a particular day in all these years. It might be surprising to say that in this locality there has been a temperature, after November 20th, of 50 degrees and above only 8 times in the past 46 years. The Weather Bureau is authority for this. So you see the dates, Nov. 5 to 20, are a safe range to go by in waiting for a flight.



GRAPH SHOWING POSSIBLE FLIGHTS FROM 1909 TO 1919.

Again, the forecaster is in constant communication with all other stations in the U. S. and Canada. He can, therefore, with certainty forecast the temperature and weather conditions for a week in advance. In fact, I have had the Weather Bureau give me the probable weather for 10 days in advance, and am happy to say that the forecast was completely verified. In fact, I consider this one forecast worth many hundred dollars to me. The bees were put in the cellar and had no other opportunity for a cleansing flight that fall. Zero temperatures were encountered soon after. Surely, the forecast was worth a great deal financially.

Each fall and spring I am in constant communication with the Weather Bureau. In fact, I know the probable temperatures that are likely to exist at least 72 hours in advance. In the fall of 1919, this service was certainly worth much. The bees were put in the cellar on Nov. 19. Temperatures dropped daily after this date, and by Dec. 1 we had zero weather, and

December, 1919, was the coldest December in the past 46 years from a statistical standpoint. Bees left out had to suffer all of this cold weather, many beekeepers probably placing them in the cellar the middle of December. Surely those bees were not fit to be put in the cellar.

Similarly in the spring, the Weather Bureau can be of service. Suppose the weather has been nice for several days, and pollen in sight for the bees to gather, if set out. The beekeeper seriously thinks of removing the bees from the cellar. Possibly the season seems earlier than usual. However, if he knew that 72 hours later, there would be a sudden drop in temperature, and his bees would be subject to a week of freezing weather, he certainly would not remove his bees from the cellar. The beekeeper does not know this, neither does the weather calendar hanging on the wall in his kitchen. The forecaster of the Weather Bureau does, and the beekeeper can have this information for the mere asking.

Young queens, plenty of young bees, ample protection, good and sufficient stores, and proper cellar temperatures are all determining factors in wintering. For the man who winters his bees in the cellar, there is one more problem: When to put them in, and when to take them out. The U. S. Weather Bureau can assist you in solving this important problem each fall and spring.

Oconomowoc, Wis.

[In a private letter which Mr. Aeppler wrote us he says, "What I can't understand is that more beekeepers who winter in the cellar have not in the past availed themselves of this splendid service." In the January, 1920, Domestic Beekeeper he saw the following by Mr. Kindig: "This year a large part of the bees which are normally wintered in the cellars of Michigan were put in without an opportunity for a cleansing flight. At this time some of the bees are swollen, and in other colonies unmistakable signs of dysentery are present * * * at a recent convention the following question was raised * * * * should the bees be put in anyway, etc. * * * *The writer hopes that some of those who follow cellar-wintering will write in their experiences as they relate to the solution of the above question." Mr. Aeppler, accordingly, wrote to Mr. Kindig suggesting that he get in touch with his local Weather Bureau and determine whether or not they recorded a temperature of 50 degrees or more on Nov. 17 or 22. From his knowledge of climate and weather he thought the bees should have had a flight in Michigan on Nov. 18 or one day later than in Wisconsin.

Mr. Kindig was quite interested in the matter and obtained the desired data, which showed that the bees of Michigan had a chance for flight on Nov. 17. On that date the temperature in Michigan was 7 degrees higher than in Wisconsin at the same latitude, the westerly winds being tempered in crossing Lake Michigan. Also, the day was clear and suitable for the flight of bees. The fall of 1919, Mr. Aeppler says, was one of the most open falls in the past 46 years, and the beekeepers, therefore, did not quite realize the lateness of the season and thus left their bees out too long. Had they made use of the Weather Bureau this would not have occurred. This one illustration should serve as an object lesson to those who winter in the cellar. Mr. Aeppler believes the only safe practice for any beekeeper is to get the climatological data for his immediate vicinity and determine how many chances his bees have for a flight before Nov. 20. He is convinced of the wonderful service that the Weather Bureau has rendered and can render to the beekeepers of America, if they will only ask for the information when needed.—Editor.]

PACKAGE BEES A SUCCESS

Large Packages at Beginning of Main Flow More Profitable Than Small Packages Earlier

By Dr. Ernest Kohn

THE South can more easily produce bees than a crop of honey. Their honey flow is usually light for many months of the year. This is conducive to brood-rearing, at the expense of the honey crop. The North can more easily produce honey than bees. There is usually a heavy honey flow, with periods of scarcity of nectar.

It is possible to take advantage of these conditions by utilizing the Southern bees to gather the nectar of the North. The transportation of the bees may be in their hives by freight, or by packages of bees by parcel post or by express. When the distance is short, as between Utah and California, the freight shipment of colonies and equipment is considered profitable. For the North-Central States and Canada, on account of the long haul and the time consumed on the road, the freight shipments of colonies with equipment has usually met with failure. The package business, however, has generally been successful.

Success of Package Bees.

The object of a package of bees is to be or to make a profitable colony by making increase, to take the place of winter-killed colonies or to strengthen weak colonies.

A few years ago a few enthusiasts of the package predicted that we in the North would find it profitable to kill our bees in the fall after the honey flow, and replenish in the spring by packages obtained from the South. I have no data that this has been tried, but David Running of Filion, Mich., in 1918 compared packages with well-wintered colonies. Two-pound packages, received April 27, after deducting five pounds fed in the spring, still averaged 21 pounds per colony more surplus than the average of the old colonies in the same yard. Two-pound packages, received May 15, averaged four pounds less than the old colonies after making the five-pound feed deduction.

How Packages Are Sent.

The package or cage is made of either wood or wire. For parcel post the postal regulations provide for wood, with saw-cuts not to exceed 1/12 inch for ventilation, or with double wire cloth, the outer and inner at least ⅜ inch apart. For express the package is usually made of a single thickness of wire screening. Either package should have at least 360 cubic inches for each pound of bees.

The feed for the bees en route is either sugar or a frame of honey. Sugar is usually recommended and used on account of possible foul brood, and, in the instance of the mails, liquid feed is not permissible. I prefer the package supplied with a frame of honey and brood. If I did not have absolute confidence in the shipper, I would shake the bees on foundation, and either destroy the combs, or collect them and use them on a limited number of colonies until I was sure they were free from disease.

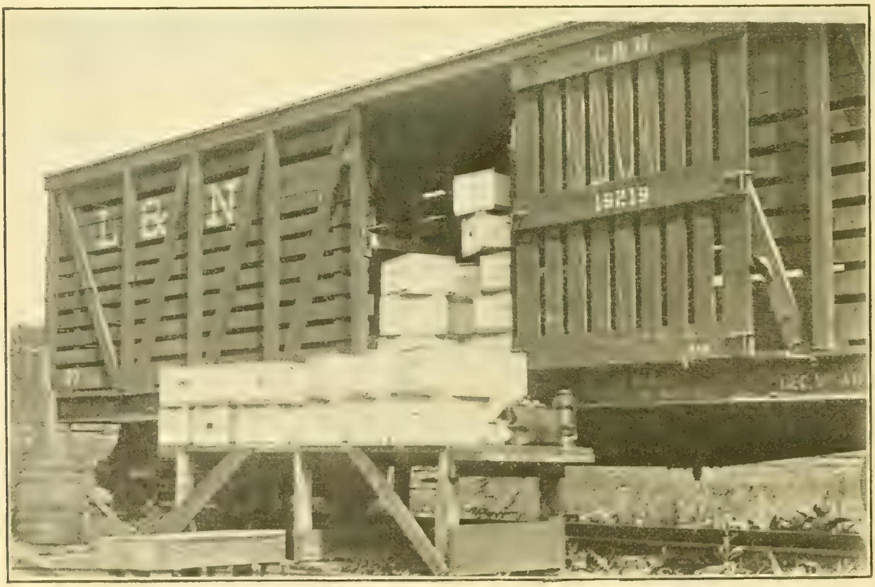
Packages are being transported by parcel post and express. The mails became available for bee shipments in 1919, thanks to the especial efforts of Dr. Phillips and E. R. Root. For short distances and small packages, the parcel-post shipments have been successful. For larger packages and long distances the express has particular advantages, as the postal regulation limits the distance to five days en route and does not allow water nor honey and gives no recourse for loss.

Arrival and Treatment.

The time of arrival should be according to the size of the package, and whether or not a crop of honey is expected. A small amount of bees, received early, with proper care will make a fair-sized colony at the honey flow. Instead of all cash, one is investing a part in food and labor to make a working colony. On the other hand, large packages should be used if received near the beginning of the principal harvest.

If the weather is not favorable when the bees arrive, the packages should be sprinkled with a mixture of sugar and water, and placed in a cool, quiet, dark cellar or room until outside conditions are favorable. When favorable, place the bees in hives on drawn combs preferably, or on full sheets of foundation, and give feed. An excluder placed beneath the hive will prevent the possibility of the bees deserting their new home. A frame containing brood will have the same results.

If packages are received before the middle of May, they should have abundant pro-



A carload shipment of bees from Florida.

tection. I like the quadruple case packed as for winter. Feed should be given in all cases; honey and pollen in combs, with the cappings bruised, or sugar syrup. The feed may all be given at one time or at intervals; but be sure that there is no scarcity at any time till nectar is coming in fast enough to supply more than their needs.

My Experience with Package Bees.

About May 10, 1918, I received 300 pounds of bees. Of these I made 60 three-pound colonies and 20 six-pound colonies. These were all treated the same, by giving each colony the combs on which it was shipped, one or two frames of honey and pollen, three or four empty combs, and filling the remainder of the hive with full sheets of foundation. Those worked as three-pound colonies produced a surplus of 25 pounds, while those worked as six-pound colonies gave 75 pounds surplus. All these were left with sufficient stores for wintering in one hive body. It will be seen that the six-pound package gave 50 pounds more surplus than the smaller package. This gave me $10.00 additional for an extra investment of $4.00.

For 1919, as an experiment, I purchased 25 one-pound packages which arrived April 16 to 20. Also 600 pounds, which arrived about May 15. The one-pound packages were given a frame of honey, and later, two frames of sugar syrup. They were packed as for winter in quadruple cases. These built up to two stories for winter but gave no surplus.

The 600 pounds, received about the middle of May, were worked six pounds to the colony. They were given the two combs on which they were shipped, and about one full comb of honey. The remainder of the hive was filled with full sheets of foundation. No other feeding was necessary, as nectar at that time was coming in in sufficient quantities. After leaving them two stories high for winter, they produced 60 pounds surplus.

The one-pound package cost me $4.00, which the bees still owe me, besides owing in addition two frames of syrup and the labor of packing and feeding and later the labor of unpacking.

The six-pound package cost $9.30. At 20c per pound for honey they paid for themselves, gave me $2.70 additional, and required less labor and feed.

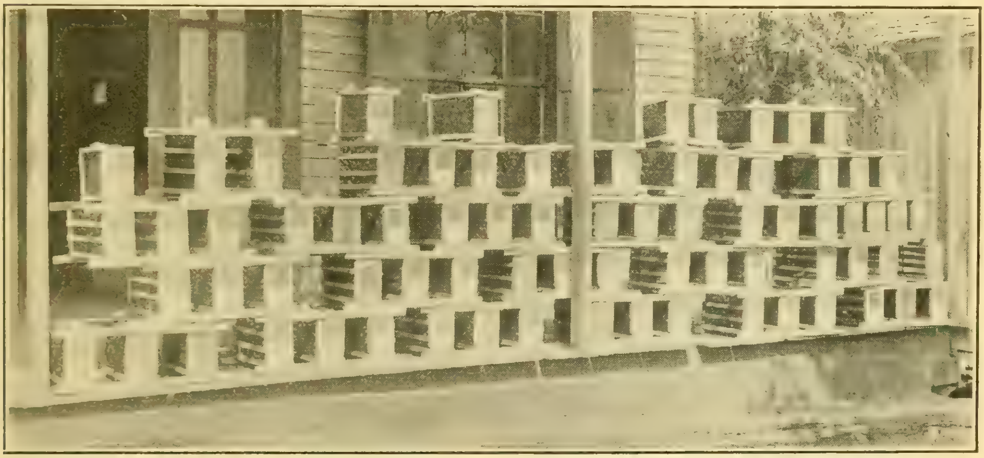
My Experience with Bees by Carload.

For comparison, I want to say that last season I handled a carload of bees from Florida. The bees came thru in good condition, and were given splendid pasture. The 270 colonies produced 5,015 pounds of surplus, or less than 15 pounds per colony. The bees dwindled to about 200 colonies. They had no disease.

Conclusions.

For my locality, carload shipments are not profitable. Packages are a success. The large package at the beginning of the clover flow is more profitable than small packages received early. I believe that 9 or 12 pounds of package bees in one colony are worth a trial. I prefer bees to be shipped on combs. The shipper should send 10 per cent extra bees.

Grover Hill, O.



A big lot of pound packages just arrived. Such colonies should have immediate attention.

[In regard to David Running's experience with package bees, he states: "This experiment was made in 1917. The home-wintered bees were much stronger at the beginning of the honey flow, but just at that time were struck with the disappearing disease, which weakened them very much. For some reason the package bees were not affected. Had it not been for this disease affecting the home-wintered bees, they would probably have given a greater return than the package bees gave."—Editor.]

MORE POINTS ON WIRING

Best of Many Wiring Suggestions Sent to Gleanings Since our February Issue. One by Dr. Miller.

By the Editor

SINCE the article on wiring appeared in the February issue of Gleanings, many have been writing us on the subject, some commending either vertical wiring or else the recent improvement on Stone's method—that is, four horizontal wires with two diagonals attached to the middle of the top-bar, others giving their own methods of wiring or else making other interesting suggestions. Knowing that our readers will be interested in the subject, we shall give them a brief glimpse into a few of these letters.

Criticises Principles of Wiring.

L. L. Wheeler, U. S. Asst. Engineer, Sterling, Ill., says: ''It is a principle in mechanics that a load of any size, even a very small one, placed on a straight line, such as a wire supported at two points, produces infinite stress on the line until it either sags or breaks. It follows, then, that the horizontal wires in a frame will sag with the load of honey and brood if means are not taken to prevent this sagging.''

He says the method of using four horizontal wires, and drawing the wires down when imbedding them, ''is wrong in principle, as it puts a strain on the wires in the same direction as will the load placed on them later by the bees.'' This criticism, he says, ''also applies to the Stone method of wiring, as the wires from one hole to the next run along the grain of the wood; and, as the wood is softened by the moisture in the hive, the wires will cut into the wood with the increased load. The diagonal wires in the Stone method can have no effect in preventing sagging except as they make the upper wire taut. If the load, added to the strain of the diagonal wires, causes the upper wire to sag, the diagonal wires are without further effect. In the method proposed by Mr. Root, the diagonal wires can sag, but will have more useful effect than those in the Stone method.''

The Ventura method, he states, is correct in principle, supports the two upper wires properly at the center, but would permit those wires to sag between the center and the ends, and also there would be no support for the two lower wires. We think, however, that if the two upper wires are supported properly at the center, that is exactly where the support should be, and we do not think the beekeeper need worry much about the rest of the comb.

Objections to Knotting the Wire.

Mr. Wheeler suggests both horizontal and vertical wiring with a ''clove-hitch'' knot wherever the wires cross. In principle this is doubtless a good method; but in practice we believe it will be found that there will be a few unused cells at every place where the wires are knotted. Moreover, knotting the wires in this way would take a prohibitive amount of time, and would prevent the foundation from being imbedded by electricity, as the current would short circuit instead of heating the whole length of the wire. This last objection also applies to several others of the suggested plans.

Prevention of Wires Imbedding in Wood.

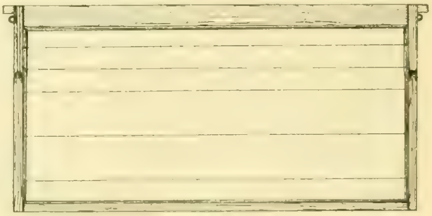
One valuable suggestion in Mr. Wheeler's letter is his way of preventing wires from imbedding in the wood and thus causing slackness. He speaks of passing the vertical wires out of the holes to tacks, fastening them crosswise to the grain of the wood. To us there seems but little question that much of the slack is caused by wires gradually imbedding in the wood running lengthwise of the grain. Any practical plan that will overcome this difficulty will help wonderfully in eliminating the sagging problem. Right in this connection, we rather suspect that Mr. Stone's success with his wiring is due not entirely to his style of wiring but also to the fact that he uses a wire much larger than the ordinary wire. Other suggested ways of preventing the wires from imbedding in the wood are similar to the one made by W. D. Jefferson of Mammoth, Arizona. He drives in one ⅞ wire nail on the inside of the frame at each point of attachment, and then by means of a little tool made by his blacksmith he bends each nail in the form of a hook for attaching the wire.

Loose Wiring Causes Slack.

A few have offered objection to loose wiring, saying the wires should be drawn taut. One claims that loose wiring has spoiled more combs for him than any other one thing.

Adding a Fifth Horizontal Wire.

Two have suggested that the ordinary horizontal wiring could be greatly improved by adding a fifth wire; and one suggests using the ordinary wiring, only placing the top wire ⅜ of an inch from the top-bar instead of one inch as at present, and then



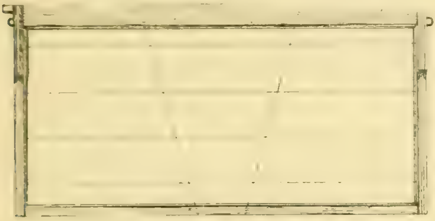
A fifth horizontal wire helps some.

putting a fifth wire halfway between the two top wires. This would supply some additional support exactly where needed.

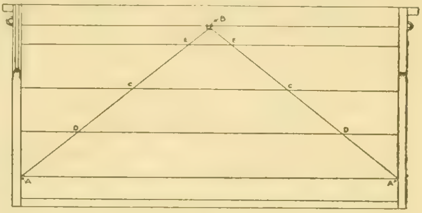
A Fair Plan.

Among the different plans handed in, W. H. Keller's is one of the best. It is as follows:

''Among the various methods of wiring frames suggested in the books and magazines I have not found any just like my method. I nail my frames ten at a time in a clamp similar to the one described in Gleanings for April, 1917; and while they are yet in the clamp, with an automatic hand drill I drill two holes thru the top-bar and two thru the bottom-bar. Those in the top-bar are about 7 inches apart, and equally distant from the center; and the ones in the bottom-bar are about 1½ inches apart, also equally distant from the center. The drill is held sloping toward the end of the bars so that the holes approximately line up. Tacks are started at the side of the two holes in the top-bar and also beside the top and bottom holes in one end-bar while the frames are still in the clamp. I put in the horizontal wires in the usual way, making them as tight as I can without breaking. Then I put in the diagonal wire down thru one hole in the top-bar, thru one in the bottom, back thru the other, and out thru the second hole in the top-bar. The end of the wire is given a couple of turns about the tack, and then the slack pulled back and a couple of turns made about the tack at the first hole. The tacks are driven home, and the wire broken off. This diagonal wire is not drawn very tight—just enough to take out all the slack and pull up the middle of the bottom-bar slightly. Of course, these holes are all drilled so as to have the wire all in the same plane; but in putting in the diagonal wires I do not weave them thru the horizontal wires. It is better not to. I use electricity for imbedding the horizontal wires first, and then the diagonal. Now, I know you will say that is a lot of fussing and killing time. Well, I am more concerned in getting a frame as nearly perfect as possible than in saving a little time. It takes only a few seconds to put in the diagonal wire, and I believe it is worth while. I got started on this method by having to overhaul a lot of hives in which there were flimsy frames without wires or foundation. After I got them wired up thus and filled with full sheets of foundation, and the bees had done their part, they made such fine combs that I have never used any other method since.''


Keller's plan of wiring.

We suggest that if the sheet of foundation is inserted between the two sets of wires, the horizontal and the diagonal, there will be no trouble from short circuiting. The plan looks pretty good; but, tho similar to the one which is advocated by E. R. Root, we do not consider it so good, because the diagonal wires can not be drawn taut.

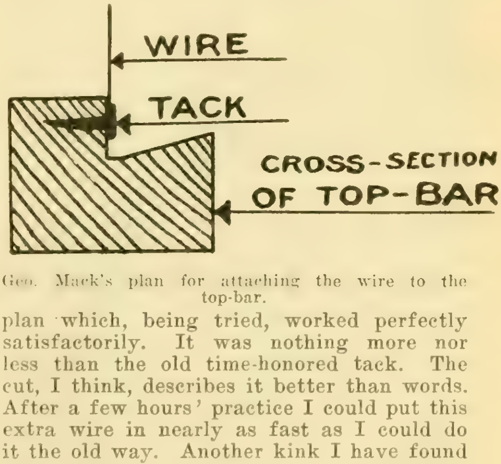


Good method of wiring advocated by E. R. Root.

A Valuable Kink.

In connection with the plan last advocated by E. R. Root, Geo. Mack of Silver Creek, N. Y., offers a kink well worth trying. We give the following extract from his letter:

''Wiring of frames has never been at all satisfactory with me. I have tried every method in existence (except E. R. Root's trick), and still I have never been satisfied. The nearest I have ever come to being suited was to wire in the regular way and then put in two diagonal wires. This, however, did not quite suit. Friend Root's trick hits the spot with me exactly, for I know he would never have given it to us unless he had known what he was talking about. Now, in trying the trick, the staple in the top-bar struck me as being by far the best. I tried the staple, but it did not work out quite right. If I put the staple close to the saw-kerf, so as to have all wires touch, the wood split and the staple pulled out. After a few minutes of thinking I hit on a plan which, being tried, worked perfectly satisfactorily. It was nothing more nor less than the old time-honored tack. The cut, I think, describes it better than words. After a few hours' practice I could put this extra wire in nearly as fast as I could do it the old way. Another kink I have found out about the wiring game is the use of a pair of pincers or pliers for setting the



Geo. Mack's plan for attaching the wire to the top-bar.

tacks. This works much better than using a hammer. The best pincers I have found are those with adjustable jaws, using them with the widest opening.''

In connection with the use of pliers, A. A. Clarke of LeMars, Ia., says: ''After the frames are wired and lying on the board ready for imbedding, place the foundation in the saw-kerf. With both hands place the wedge in place, take the frame in the left hand, with the pliers in the right, press in the wedge. Only a few motions and the wedge is firmly set even with the top-bar.''

Uses Only One Wire.

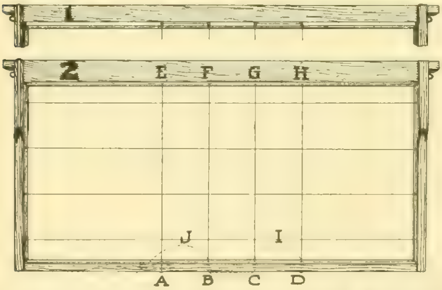
John D. Dietrich, Middleville, Mich., after trying Mr. Root's plan of wiring, says he can wire more quickly with one wire. He says: ''I begin at the top hole and wire horizontally in the regular way until I come to the last hole. Then I drive a nail in the center of this hole; pass the wire around this nail and then wire diagonally. I think this is a good deal quicker than wiring the frame in the regular way and then wiring the frame over the new way.''

Vertical Wiring.

The A. I. Root vertical wiring, used so long ago, has been sanctioned by a number who seem to agree with A. W. Lindsay of Detroit, Mich., who says: ''We must all take off our hats to A. I. Root, and acknowledge he was a long way ahead of his time.''

Four vertical wires and four horizontal is the plan of J. E. Thompson, Medina. He puts in the vertical wires very rapidly.

He first pierces four holes equally spaced in the middle six inches of the bottom-bar, then puts in the horizontal wires in the usual way, and places the foundation on the wires. In the top-bar, just opposite each hole in the bottom-bar, he uses an awl and pierces a hole thru the top edge of the foundation into the side of the saw-kerf as shown above, and into this hole he forces a ⅜-inch tack. The tack is not forced clear in, but is left projecting slightly. To wire vertically he threads the wire down thru the bottom-bar at b, up thru the hole at c and down thru at d, and there secures the end by a tack driven in at one side of d. The loop of wire (i) is then drawn to the top-bar and slipped around the heads of the tacks at h and g. The wire at b is then passed around the heads of the tacks at f and e and attached at a. The tacks in the top-bar are next forced clear in, and the wedge nailed in place. Each set of wires in turn is then imbedded either electrically or by hand.



Vertical wiring may be done rapidly by J. E. Thompson's plan. The foundation which is placed between the vertical and horizontal wires is not shown in the cut.

Dr. Miller's Contribution.

Of all the letters received, the one that may interest our readers the most is one by Dr. Miller concerning ''splints and vertical wiring.'' (See page 228.) The letter is addressed to E. R. Root and is as follows:

''It needs no argument to show that wired combs are ahead of splinted ones for extracting; but when you laid yourself open to attack by practically saying that a thing couldn't be done that I'd been doing straight along, do you think I'd miss the fun of having a whack at you? The more firmly the comb is held in the frame, the greater the speed that can be reached; and the greater the speed, the better. I'm none too sure that the splints do anything whatever to keep combs from breaking out of the frame. They are a little shorter than the distance between the top-bar and the bottom-bar, and do not, as you seem to think, go down between the two parts of the bottom-bar. Yet I think you would be no little surprised to know how satisfactorily splinted combs work as extracting-combs. You picture to yourself a feeble old man running a two-frame extractor at a slow rate. Instead of that, the extractor is an up-to-date one with four pockets, the operator hired having an arm stronger than yours, and the extractor would not be run so very much faster if there were no danger of breaking. But even a little difference is worth considering when it comes to running an extractor by power.

''It would not surprise me if any day something might turn up that will revolutionize this whole matter of extracting. Indeed, it may well be that the whole of beekeeping is yet in its infancy; and there never was a time when a better brand of brains could be found at work on its problems. The Government never was so interested as now, and beekeepers may well feel proud to have as a leader such a man as Dr. E. F. Phillips.

''In one respect, Mr. Editor, you give me credit I don't deserve, and I must climb down to a lower seat. You think I devised foundation splints with the view of having the queen extend her laying clear to the top-bar. Instead of that my aim was to get combs built down to the bottom-bar, and I did not know till later that there was any stretching at the top, for I had none, my wires all being vertical.

''It wouldn't surprise me to hear A. I. Root chuckling and saying, 'With all your new plans, what have you any better than the old, simple, vertical wiring?' ''

C. C. Miller.

FROM THE FIELD OF EXPERIENCE

BREEDERS ON THE SQUARE

Why Not Safeguard Breeders in the "Code" as Well as Buyers?

As I am one among hundreds of beekeepers who buy queens each year, and bees in packages to a lesser degree, naturally I was very much interested in the "Code for the Sale of Bees and Queens," as explained editorially in February Gleanings. My purpose in writing this is not to criticise the agreement, as signed by the great majority of breeders and shippers who advertise in Gleanings, for I think that everything is provided that is at all necessary to safeguard the purchasers, especially when the guarantee of the publishers of this journal, as given on another page, is taken into account.

On the other hand, it is my purpose to call attention to the fact that possibly in some cases the buying public do not always do what they can to help along; and, in a few cases at least, positive dishonesty on the part of the purchaser is liable to occur just as much as among the sellers of bees and queens.

In reading of the dishonest proprietor of the "Pelican Apiary," beginners might be led to think that this is a common occurence among queen-breeders and shippers of bees, altho all who have been in the business for any length of time know that this is not so. Needless to say, the editors of this journal have in no way insinuated that such is the case. For the past 15 years I have annually bought numbers of queens from many different breeders, and, while all stock did not give satisfaction, yet I am not sure that I was ever dealt with in a dishonest manner. The men, as a rule, with whom I have dealt have always acted in a gentlemanly way—indeed, it has been a great pleasure to do business with most of them—and some from whom I do not buy queens at present, are nevertheless counted as very close friends. So I repeat that while an occasional shipper may be "crooked," the great majority are "four square" in every way. While I believe that the great majority of beekeepers who buy queens and bees are also honest, yet that an occasional one may be a crook is none the less true, as the following occurrence will prove.

Some years ago while examining a large apiary, the owner in a burst of confidence remarked: "A dozen queens came a short time ago from the same place, and I laid them on the window sill in the hot sun for a few minutes, and every one was killed. I wrote the queen-breeder and said that the queens all arrived dead, and he sent me another lot at once to replace them." The queen-breeder in this case (an Ontario man) happened to be a close friend of mine, and I can assure you that this beekeeper never again told me of any similar transactions on his part after I told him what I thought about it.

When queens are expected by purchasers, provision should be made for their reception; and, as we now have so many rural routes thru the country, care should be taken that they are not left in the mail boxes too long in very hot weather. Some of the smaller-sized boxes, in particular, get very hot in the summer time; and, even if the queens are not killed, too long a baking certainly does not improve their vitality.

So far as receiving bees in pound packages is concerned, the buyer can go a long way in helping towards satisfactory conditions. The shipper of bees should **always** notify the purchaser a day or so before the bees are sent, and then the purchaser **should be prepared** for the bees when they come. If some distance from the station, engage some one whom you can trust to look after the bees by placing them in a cool place out of the sun and giving them a sprinkling of water or thin syrup, as required. If shipment is made to Canada, all the more need of care for their reception, for bees, like other merchandise must go to the Customs' office for clearance, even if they are admitted duty free. If not, have some one near your Customs' office engaged to make clearance the moment they arrive and have the bees forwarded to you. If an easy distance, have some one wire you as soon as they arrive, and go personally and attend to them, bringing them with you if making the trip by auto. If no care is taken in this regard, the bees may arrive and possibly no notice be sent you for a day or two, as some Customs' officials never seem in a hurry, to say the least. The day or two of delay while they are lying in a hot building may be the cause of a lot of loss and disappointment all around. I have bought some bees in packages for the last few years, and I always have some one clear and rush them to me at once. Co-operation between shipper and receiver always works well, no matter what is being handled, and in the case of bees and queens there is no exception to this rule.

I almost forgot to mention that for all I have said as to amicable relations in my past dealings with queen-breeders, just at present I happen to have a dispute with one of them. A certain breeder down in Tennessee was to send me quite a lot of queens last summer; but, thru the rush of orders and not being able to make delivery at the time I had specified, he kindly had another breeder send me queens in his place. But before this he had already sent me a dozen queens for which I have no record of ever paying him. In fact, I feel sure they were not paid for. He insists that all were paid for, and that I owe him nothing. What shall we do in a case like this—the proposed "code" is of no use here. However, neither one of us has as yet decided to go to court over the matter. J. L. Byer.

Markham, Ont.

THE COSTS OF PRODUCTION

Beekeepers Need to Adopt a Cost Accounting System

A big retail merchant here, addressing a gathering of merchants recently, said: "We must watch the costs. We must know what it costs us to do business," and then he went on to elucidate. He is reputed to pay liberal salaries, and he keeps his help, and his remarks had to do with other expenditures. It set me to thinking of our business of honey production and of how little we know or think of costs save of supplies and containers.

Take any of our trade papers and search them for discussions on production costs, and there is scarcely even a hint that anyone thinks of such things. Everything is on equipment and manipulation, on diseases and on stock. Not a word as to what the manipulation under consideration costs in time; not a whisper as to the capital invested in the equipment; nothing as to interest, upkeep, and depreciation. Plenty of discussion as to honey quotations and prices, but no suggestion as to what the honey cost us in dollars and cents. If we do not know what it cost, how can we form any intelligent opinion as to what we should sell it for? Is there any other business which could live on such a basis? Judging by the constantly changing ranks of the beekeepers, it would seem that many drop out of it. Is it because they could not make it pay? Just because you live and have a little money left over at the end of the year, does not mean that you are making money. It does not mean that you are getting a fair return for your time and muscle. And if you took account of the depreciation of your outfit, of interest, etc., you would probably find that you were behind instead of ahead.

Prof. Melton's colonies on the campus of Fruitland Institute. Mr. Slattery claims these are the best-kept colonies in Henderson County. From the mountains in the background, sourwood honey is gathered.

Unless we have a pretty clear idea of the cost in cash and in labor of the various operations in production, how can we tell where to improve and cut down? With the present prices for honey this subject may not interest you, but consider the increasing cost of supplies, of transportation charges, of labor, and several other things, and then see if you are not interested in studying your business and finding out where you can reduce expenses. The knowledge of these things seems hard to get; we do not seem to know where to look, how to find out the costs of the various operations, how to estimate depreciation, and the keeping track of the time seems too much bother to most men. As for bookkeeping, outside of a simple account of amount received and paid, scarcely any one knows anything about it.

Some years ago I tried to interest beekeepers in this subject, but only two or three persons made any response. Since then the National Government has been conducting a campaign of education on farm bookkeeping, and perhaps the time is now more propitious for taking up the subject of honey-cost accounting. I asked a number of big producers what it cost them to produce a pound of honey, and the replies ranged from one cent to twenty cents. In most cases I knew it was merely a guess. If you guess it is costing you one cent while it is actually costing you twenty, you will have little trouble "guessing" when and where your finish will be. If you know exactly what it costs you per pound, you will know just how low an offer to accept if competition is sharp, or if the market is overstocked

FROM THE FIELD OF EXPERIENCE

or sluggish. These high prices are not going to continue indefinitely, and when the pinch comes those men who **know** the costs of every step will know where to save and curtail, where to make changes and improve.

Do you want to know one of the reasons the price of supplies began to advance some years ago? According to the word of one big manufacturer, they had just begun to find out the actual cost of every separate thing they made, and they found that some major things were being sold at a loss. They had put in cost accounting systems. These are expensive but not nearly so costly as losses.

Our business is a complex one, made up of a multitude of details, and it will need the combined thought of many of us to evolve a workable plan of studying costs of all departments of our work and of keeping subsequent track of them. But I believe that it is very much worth our while; in fact, I believe that we must do something of the sort if we are to prosper.

In actual apiary work there are many leaks and many faulty practices, but just how great the loss from them cannot be accurately told until we have actual figures to go by. As an illustration of a common and serious leak, consider the non-productive colonies to be found in most apiaries every season. The outfit they occupy is rather worse than idle capital, because it takes costly labor to look after them and they return little; or worse, they take from the fields nectar which would do us more good if put in the surplus chambers of other colonies.

Who will lead us out of this darkness of ignorance? Arthur C. Miller.

Providence, R. I.

[If the reader will turn to page 163 of the March, 1919, Gleanings, and also to page 309 of the May issue, he will find that Mr. Kindig offered beekeepers quite definite and valuable help in determining the cost of production. Evidently the beekeepers did not realize their need along this line, for we regret to say that only two replied. This offer was far too important to be so readily thrown aside. We certainly need such help. —Editor.]

A NORTH CAROLINA VIEWPOINT

Defends Bee- and Queen-rearers. Considers Them Fully as Honest as the Buyers

About one bee journal out of two which come to us readers has rather insinuating remarks about the men who raise bees and queens. Some gentlemen discover that they are not all honest; and other gentlemen, according to their reports, make similar discoveries. It is my opinion (and I have bought enough queens to have the right to an opinion) that there is more evidence of ignorance as to the necessary elements in successful business and a greater show of greed on the part of the purchasers of bees and queens than on the part of the breeders. More than 99 per cent of the breeders with whom I have done business have tried hard to do a good, square business. It has not always suited my convenience in every detail, but there has been an effort to be square in every case.

An apiary of box hives capable of holding 100 pounds of honey and bees, but which Mr. Slattery says have seldom been full. When he purchased these colonies he was told that the bees would die since their owner had recently died. The bees are still alive, however.

Before I had been in the business long I discovered that there were many queens advertised that were so cheap I could not afford them. Why should we who buy queen bees expect that a universal law should be set aside for us, and that we should get something for nothing? When queens are priced at a dollar each, the 60-cent queen does not interest me. She used to do so. I bought a few of that type, and then decided that I would just pay for a good quality of queens, and demand them. The man who sells the cheapest cheap queen may be honest in his intentions, and often is, no doubt; but no man can succeed who has a cheap conception of his business. One breeder advertises a cheap product; a dozen purchasers bite, and want sympathy when they get a bad taste in their mouths. It's their bite; so let them chew till they learn how to bite.

I have found a queen-breeder whose business methods are faultless, and whose bees are high grade. In the beginning of my bee-

FROM THE FIELD OF EXPERIENCE

activities I bought far and wide to sample the bees and the breeders who advertise their wares. I now shall use his queens till he or his bees depart from the high standard that they now hold.

Hendersonville, N. C. J. J. Slattery.

* * *

RELATION OF ALSIKE AND BEES

Yield of Alsike Seed Per Acre Strikingly Increased by Proximity to Apiary.

In the spring of 1918, while considering the location of an outyard, a farmer asked me to place some bees in his 40-acre alsike field. He had some relative that told him of the increase in yield due to the proximity of bees. I placed 75 three-pound packages in his field. His yield was three bushels per acre. By inquiry I found that fields more than two miles from bees were not worth threshing that year. This farmer was well pleased, but insisted that there were not enough bees. As he had 40 acres for 1919, and several of his neighbors had sown alsike, I placed 100 old colonies on his farm.

I have made a complete survey of the township, and got all the information from threshers and other sources, concerning about 80 square miles, giving the location of bees, with the number of colonies, and the location of alsike-clover fields, with acreage and yield.

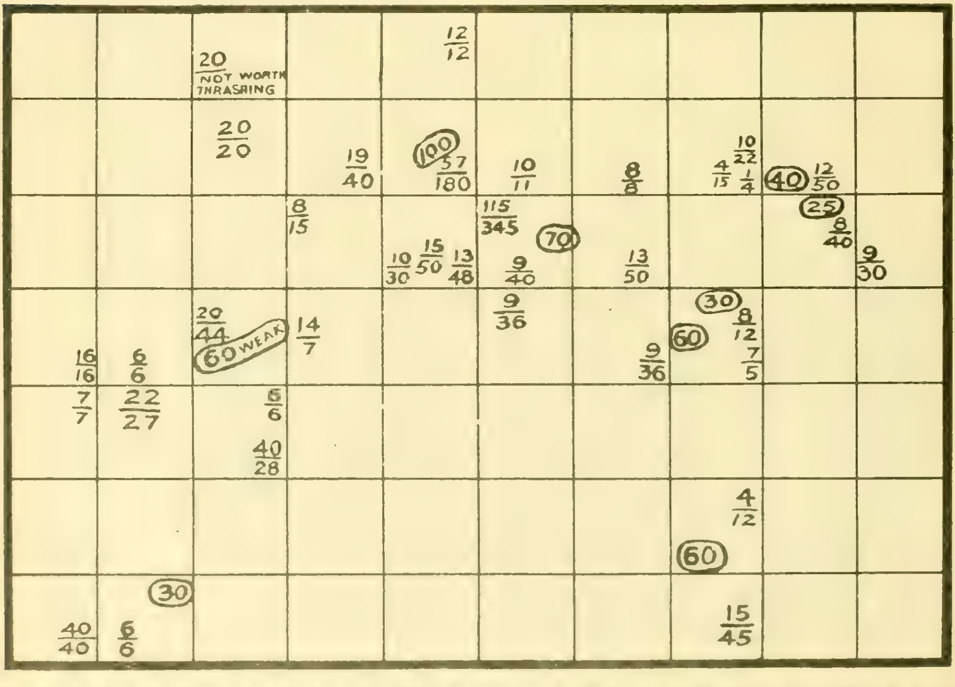
The accompanying map shows in circles the location of bees, with the number of colonies. The numerator of the fractions represents the number of acres in alsike, and the denominator denotes the number of bushels threshed.

The yield was not heavy at any place, as drought shortened nectar flow at least three weeks. It will be noticed, however, that near a large number of colonies the yield is three to four bushels per acre, while two miles or more from bees the yield is not more than one bushel per acre.

The lesson of this article is interesting to the farmer as well as the apiarist. The farmers near the bees received more cash per acre from the seed than they did from any other crop produced, and at the same time they were storing fertility in their soil.

Another lesson learned is that the majority of farmers are ''from Missouri''—they must be shown. Notice the number of alsike fields near some of the bees, while mile after mile where there are no bees there is no alsike. I plead guilty to doing missionary work near my bee-yards.

Grover Hill, O. Ernest Kohn.



The circles show the location of the colonies. The numerators of the fractions represent the number of acres of alsike and the denominators the number of bushels threshed.

SIFTINGS

J. E. Crane

THAT statement concerning feeding both cane and beet sugar in large quantities late in the season, mentioned on page 87 of February Gleanings, was comforting to me, to say the least. It would be of value to know under what conditions sugar had granulated so that large amounts have been removed in the spring. Is it not possible that the feed was granulated honey instead of sugar syrup? We have sometimes had honey granulate badly in the hives during winter.

* * *

It begins to look as tho there might be heavy losses again this winter in the North. The Government weather station at Burlington, Vt., reports January as being one of the coldest on record, and Feb. 1 as having the lowest temperature ever known at that station.

* * *

On page 91 Mr. Parks was undoubtedly right in regard to the apple and peach trees blooming in the fall. J. J. Wilder showed me a peach tree on his place that, he said, always bloomed in the fall. I noticed good-sized peaches on this tree early in April, while other trees were, I think, hardly in bloom.

* * *

There appears to be some discrepancy between the statements of M. C. Richter of California and H. B. Parks of Texas. Mr. Richter says on page 92 that Texas disposes to outside markets 60 per cent of her crop of honey, while Mr. Parks says on page 94 that Texas not only consumes its own crop but imports large amounts from other States.

* * *

Mr. Byer tells us on page 95 that he is not satisfied with his hives' winter entrances, which are narrow and long. He would prefer a higher entrance so as to prevent clogging during our long cold winters. On page 87 of Gleanings for January I gave the size of entrance to the winter cases at Somerset as ⅝ inch. I learned later that they were ½ inch. In thinking it over since, I have come to the conclusion that I would be unwilling to use in the North a size so small. We have sometimes found them clogged with an entrance ⅞ inch in size. Maybe, if I had had larger colonies or more packing, it would have worked better.

* * *

Those methods of wiring, given on pages 77, 78, and 79, are certainly of great value where combs sag badly, but we have little trouble where the upper wire is near the top-bar and the next not far below the first wire. I have been wondering if climate has not something to do with combs sagging, and if the trouble is not greater in the excessively hot summers of California. We also have our foundation drawn in supers or between old combs in the brood-chamber. I have had combs drawn from Van Deusen flat foundation in use for 40 years without showing the slightest tendency to sag. And, again, where a hive had become overheated, this same foundation comb would not only sag and settle but go to the bottom of the hive.

* * *

In the everyday language of Virginia, those figures quoted on page 106 by B. F. Kindig from Dr. Merrill are "mighty interesting." A two-story hive in spring has 5,000 more bees than a one-story hive, whether protected or not; and a two-story hive protected will have 25,000 more. One can not help wanting to know more about it. Were the bees counted or weighed or only just estimated?

* * *

Mr. Blackbourne of Melbourne, Aus., on page 86, says we must remember that "The queen lessens her output of eggs a few days before the swarm leaves so that her body may be lightened to enable her to fly." This is the way I used to think, but I have come to think differently of late years; for I find many queens let up on laying and their bodies become light where no preparation is being made by worker bees for swarming.

* * *

My experience corresponds with that of J. H. Lovell, page 91, that elms yield pollen freely and sometimes honeydew but no honey. This by no means proves that they never do. Some plants yield honey in one section and not in another, and sometimes in one season and not in another. [Yes, but Mr. Lovell is an authority on botany not only in his own locality but thruout the United States. See his article on this subject, page 224.—Editor.]

* * *

I was greatly interested in A. I. Root's account, on page 110, of an annual sweet clover. Now, this may or may not prove of great value; but one thing seems certain, that the plant is variable and capable of being changed by the skillful hand of man. As usually grown, it does not appear wholly satisfactory, since the stalk grows coarse and woody. If a variety could be produced that would throw out many more branches, with more leaves, and not run up so tall and woody, it would be an acquisition of immense value, especially where used for hay. (For further discussion of this clover, see page 236 of this issue.)

MY CALIFORNIA

Stancy Puerden

PLEASE leave that first personal, possessive pronoun just where it is, Mr. Editor. While I cannot claim to be a resident of the Golden State, and probably never shall be, yet I love it so much that I know the generous Californians will permit me informally to adopt their State.

There is another reason for using the pronoun—my California does not seem to be the place from which some other winter tourists have returned with stories not at all like mine. I know several who were in southern California at the time I was and came away, saying they did not care for it at all. They must have worn dark blue glasses and had indigestion.

Northern winters have their compensations, one of which is the wonderful contrast which spring presents to winter. This glorious transformation from a dead and barren earth to luxuriant growth and blossoming beauty is, of course, missed by all-the-year-around dwellers in warm climates. But our beautiful springs are so disappointingly short. Some years we jump straight out of raw cold weather into a summer heat so great that it is enervating and depressing. And that is precisely why southern California is such a delightful memory to me. Its winter months are not like summer; they are more like our spring, varying from April to May with sometimes a bit of June thrown in for good measure. My ideal year would have three seasons; six months of spring, three months of summer, and three of fall, and California seems to come as near these specifications as any spot on earth.

OUR first and longest stop was made in Los Angeles, from which we drove and made short side trips in many directions. We stayed at a hotel in the heart of the city, for business reasons, and took all our meals out at restaurants. I shall never forget the tonic effect of that bracing, yet soft air which greeted us each morning when we went out to breakfast. Early in the morning a winter suit with turned-up fur collar was very comfortable. Toward noon the air warmed delightfully, and occasionally I longed for a spring suit or coat. Once or twice, in the middle of the day I discarded the winter-suit coat for a scarf and hardly needed that in the sunshine; but in the shade it was apt to be cool, and even the warmest days cooled off so much in the late afternoon that heavy coats were needed again, especially while driving.

Rainy days brought what Californians call cold weather, but it did not seem cold to us after the zero weather of snowbound Ohio. It cools off just enough to make variety in the climate. Personally, I could never live in a tropical climate, but California has just that hint of the tropics which makes it delightful without the enervating effects.

I defy anyone to talk of California five minutes without mentioning flowers. They are everywhere. You can hardly walk a block in Los Angeles or San Francisco without passing a flower stand where flowers are sold at prices ridiculously cheap. You can buy carnations from 15c a dozen up. We have bought the best for 35c at the same time they were selling for about $3.00 a dozen in Cleveland. Great bunches of violets or pansies were 15c each. There were snapdragons, stocks, marigolds, yellow acacia blossoms, orange-colored poppies, roses, and spring flowering bulbs, such as narcissus. Even if one does not buy the flowers the effect of seeing them everywhere on the street corners and in the open-front stores, which are common in Los Angeles, is cheerful enough to reform a confirmed pessimist.

Almost as fascinating as the flower stores were the markets with their displays of fruits, vegetables, meats, and more flowers. Vegetables of all sorts and even meats seemed much more reasonable in price than back in Ohio, and, of course, there was a wonderful variety of green things which could not be obtained at all at this season in the East.

Out on the country roads in every direction from Los Angeles one passes booths where fruit and flowers, either one or both, were on sale, and often honey was sold at these same booths. I was struck with the fact that oranges and honey sold for just about what they cost in the East. The price of each seems to be standardized. One could also get fascinating glimpses of nurseries and flower ranches as we passed them on our drives.

On the mountains there are also many beautiful wild flowers and blossoming shrubs. I noticed very many geraniums along mountain roads and in the valleys, and a friend told me they started in the first place from bouquets thrown away by tourists.

ONE of the great advantages of California is the rapidity of growth of its trees and shrubs. On account of this, wonderful landscape effects can be obtained in a very short time, and when one builds a new home he does not have to wait long years for his "vine and fig tree." The date palm seems to do particularly well, and there are many fine streets and boulevards beautified by long rows of them. In many cases flower seeds, such as pansies or geraniums, had been sown in the crevices between the trunk and the short stem after cutting away the dead fronds, thereby making the trunk gay with bright flowers and foliage from the ground up to where the long, graceful, fern-like branches grow. The pepper tree is another graceful shade tree which makes a very quick growth.

A beautiful tree which seems to grow almost equally well in all parts of California is the yellow flowering acacia. At a distance it looks like a tree covered with great gracefully drooping plumes of goldenrod, only it is a paler yellow than goldenrod, a pale lemon yellow with gray-green foliage, about the shade of the foliage of the California poppy. I remember one delightful road leading up from the San Fernando Valley which winds between shade trees of yellow acacia which were literally fountains of bloom when we were there. There were also many of them in beautiful Mill Valley, across the bay from San Francisco, and scattered on the slopes of Mt. Tamalpais.

We were told that it had been an unusually dry winter, that everything was suffering from lack of rain, but I certainly never saw orange groves more beautiful than those from Los Angeles to Riverside. In many the fruit had not been gathered, and the effect of the long rows of large, symmetrical trees with their dark, glossy green foliage, each branch tipped with new leaves, equally glossy and of a pale green, together with the deep color of the navel oranges and the fragrant white blossoms, was so delightful that one could forgive them if they were not useful. But that is just one of the ways in which Nature combines the useful and beautiful in ''my California.''

Many other fruit trees were beginning to blossom before we left the State on the last of February. The bright pink blossoms of the Japanese cherry form a charming bit of color, and it is much used as an ornamental shrub. Fruit trees were bursting into bloom all the way up to San Francisco, and when, on our way home, we finally climbed the Sierras into winter, there were blossoming peach trees so far up the mountain sides that snow was powdering the ground under them.

THE expression, ''all dressed up and nowhere to go,'' could never be applied to anyone in California. There are always the mountains full of enchantment and illusion and ever-changing beauty. As a San Francisco man said to me, ''We can reach the snow by ten hours' ride on the train at any time of the year.'' At this writing (Mar. 8) when here in Ohio the mercury is way down in the thermometer, when near zero winds are carrying a neighbor's daily paper where he will never read it, when the skies are gray, and there is snow in the air, it strikes me that the California way of receiving and storing snow on the mountain peaks and utilizing it in the summer for irrigating the thirsty land is both sensible and comfortable.

Every city and town seems to have its easily accessible mountain drives, drives among the foothills and drives into winding canyons. Then there are interesting deserts and still more interesting reclaimed deserts, such as the Imperial Valley with its vast irrigation system and its tropical fruits and immense crops. There are Yosemite Valley, the giant trees, Lake Tahoe among snow-capped peaks, and the ocean beaches.

The vicinity of Los Angeles is a great place for aerodromes as well as moving-picture studios. One can hardly take a drive toward Hollywood, Beverly Hills, or Santa Monica without seeing several aeroplanes in the air at once, and captive balloons are a common sight.

When you run across a number of people in Los Angeles who are conducting themselves oddly, with a man turning the crank of a moving-picture camera, you will know you are seeing a company at work on location. I had a great curiosity to see a bit of picture-making and I did not have to wait long. We ran across them at work a number of times.

Am I in danger of forfeiting the good opinion of some of the nice, highbrow subscribers if I confess to a fondness for good moving pictures? Whether one approves of them or not, the production of moving pictures now ranks as one of the great industries of the world, and the bulk of them are made in the suburbs of Los Angeles.

THE going to places of interest in California is just as pleasant as the arriving, if one drives, because of the wonderful roads. During my first ride out into the country I commented on the remarkably easy riding car and was told it wasn't the car, it was the roads, that even a flivver would ride like a limousine on those roads. They are very wide, wonderfully smooth, almost entirely free from dust, and with a dark surface which is very restful to the eyes. Instead of being unyielding concrete, of which so many are being built in Ohio, those roads seem to have the elastic texture of fine asphalt. It is bliss to ride over them, just about as near flying as one can get without leaving the surface of the earth.

There are over 90,000 miles of improved roads in the State, not all so good as those in the vicinity of Los Angeles, but very good roads. I was told one could start from Portland, Ore., and go clear down to San Diego without going out of high. Of course, they do not have the destructive alternate freezing and thawing which makes the upkeep of roads so expensive in the East and North.

DEAR me, after talking to the extent of some 2,000 words this article is remarkable chiefly for the nice things which I have omitted; just ask any Californian if that is not so. It is a country of infinite variety and beauty, ''my California.''

Beekeeping as a Side Line

Grace Allen

APRIL is the first month that breaks over the sunshiny world after the passing of the vernal equinox, after Spring has alighted ''tiptoe on a little hill,'' bearing in one hand a day and in the other a night of equal length —an eager young day, that leads that long procession of other days of April and of May, days of early dawns and late twilights, of flower and sun and fragrance, that grow at last into the brilliant warmth of summer; that night, solemn, silent, in whose train come the shortened but unspeakably lovely nights of midsummer, when, in the words of the English Henley,

"A soul from the honeysuckle strays,
And the nightingale as from prophet heights
Sings to the earth of her million Mays—
Midsummer nights! O midsummer nights!"

And I think that first spring night must look with ecstasy across her star-lit dusk to the first full-circled moon swinging rhythmically after, for then, following swiftly, will come the Easter-tide. Do you know that is how you can tell when Easter is to come? It will fall on the first Sunday after the first full moon after (unless it is on) the 21st of March. This year it will fall on the 4th of April. Perhaps, by the time Gleanings gets into our homes, Easter will have come with her bursting buds and green leaves, her white lilies and her chanted gladness. Tho we have Christianized it, we must remember that it is a festival that belongs primarily to the earth itself, a celebration of the return of flowers and grass and dewy verdure, the rising of fair living things from the tomb of winter. The very name, you know, is pagan, coming as it does from the Saxon goddess Eastre, beloved of our ancestors in those ancient days before the western world had heard of the one who ''passed like a vision of beauty athwart the Galilean hills.'' Aren't you glad the time has gone by when Christian folk felt they must stiffen at the very mention of pagan things? When the old Romans started using their Latin word *paganus*, from which our word ''pagan'' springs, they meant only a countryman or a rustic, someone, you see, who lived close to the earth, and, lacking bibles and other books, accepted the eternal God-spirit in all the divine ways it came to him —calling it by various names and worshiping it simply. They were seeking God everywhere, as he meant they should, ''if haply they might feel after him and find him, tho he is not far from each one of us.''

* * *

Because this wonder-working springtime is so soon to be over the earth and in our hearts, my thoughts today go wandering to the apiaries of next month. How lovely they will soon be, with grass greening up around the hives and bees flashing around and humming. And I am reminded of the vivid picture Maeterlinck paints of a certain apiary across the seas. With the consent of the editor and the author and all the others, I want to copy that description here, for it carries a double charm, that of the unfamiliar details of far-off scenes and that of long-known and long-loved emotions that arise wherever thoughtful, responsive hearts find sunlit hours and fragrant air and the smiling beauty of the earth.

''I have not forgotten,'' says the great Maeterlinck — and by the way, William Lyon Phelps, Professor of English Literature at Yale University, made memorable a certain bright February day when three of us motored out Lebanon Pike to Andrew Jackson's old cedar-guarded home, the Hermitage, by saying that he considered Maurice Maeterlinck the greatest of all living writers. ''For whom,'' he challenged, ''can we place above him?'' ''Yes, whom?'' we echoed, in flaming agreement, ''Whom?''

So, ''I have not yet forgotten,'' begins this greatest of all living writers—essayist, dramatist, poet—''the first apiary I saw, where I learned to love the bees. It was many years ago, in a large village of Dutch Flanders, the sweet and pleasant country whose love for brilliant color rivals that of Zealand even, the concave mirror of Holland; a country that gladly spreads out before us, as so many pretty, thoughtful toys, her illuminated gables, and wagons, and towers; her cupboards and clocks that gleam at the end of the passage; her little trees marshaled in line along quays and canal banks, waiting, one almost might think, for some quiet, beneficent ceremony; her boats and her barges with sculptured poops, her flower-like doors and windows, immaculate dams, and elaborate, many-colored drawbridges; and her little varnished houses, bright as new pottery, from which bell-shaped dames come forth, all a-glitter with silver and gold, to milk the cows in the white-hedged fields, or spread the linen on flowery lawns, cut into patterns of oval and lozenge, and most astoundingly green.

''To this spot, where life would seem more restricted than elsewhere—if it be possible for life indeed to become restricted—a sort of aged philosopher had retired; an old man somewhat akin to Virgil's—

'Man equal to kings, and approaching the gods;'

whereto LaFontaine might have added,—

'And, like the gods, content and at rest.'

Here had he built his refuge, being a little weary; not disgusted, for the large aversions are unknown to the sage; but a little weary of interrogating men, whose answers to the only interesting questions one can put concerning nature and her veritable laws are far less simple than those that are given by animals and plants. His happiness, like the Scythian philosopher's, lay all in the beauties of his garden; and best-loved and visited most often, was the apiary, composed of twelve domes of straw, some of which he had painted a bright pink, and some a clear yellow, but most of all a tender blue; having noticed, long before Sir John Lubbock's demonstration, the bees' fondness for this color.

“These hives stood against the wall of the house, in the angle formed by one of those pleasant and graceful Dutch kitchens whose earthernware dresser, all bright with copper and tin, reflected itself thru the open door on to the peaceful canal. * * *

“Here, as in all places, the hives lent a new meaning to the flowers and the silence, the balm of the air and the rays of the sun. One seemed to have drawn very near to the festival spirit of nature. One was content to rest at this radiant crossroad, where the aerial ways converge and divide that the busy and tuneful bearers of all country perfumes unceasingly travel from dawn unto dusk. One heard the musical voice of the garden, whose loveliest hours revealed their rejoicing soul and sang of their gladness. One came hither, to the school of the bees, to be taught the preoccupations of all-powerful nature, the harmonious concord of the three kingdoms, the indefatigable organization of life, and the lesson of ardent and disinterested work; and another lesson, too, with a moral as good, that the heroic workers taught there, and emphasized, as it were, with the fiery darts of their myriad wings, was to appreciate the samewhat vague savor of leisure, to enjoy the almost unspeakable delights of those immaculate days that revolved on themselves in the fields of space, forming merely a transparent globe, as void of memory as the happiness without alloy.”

* * *

One day in late January we went out to our country yard, across the contracted entrances of whose hives we had put mouse-excluding wires—three wires to the inch, if I remember correctly (we don't use it here at home, never having been troubled here with mice). As we walked along the rows that day we noticed there were almost no dead bees in front. This was especially surprising, as the few hives at home had rather considerable piles in front of each one. At once we wondered if the wires could be too close and so preventing the bees from dragging out their dead. The entrances were not clogged with them, nor could we see them lying inside. However, to be quite sure, we removed several entrance-contractors and inserted twigs or sticks to rake out whatever dead might be on the floors of the hives. There were not enough to bother with. Evidently up to that time (we have not been to the country yard since) the bees had just died faster at the home yard than in the one five or six miles away. I wonder why. There is no particular difference as to windbreaks or other protection. I wonder if there could be that much difference in the honey.

* * *

Once upon a time (away back in the spring of 1917, to be exact) there lived an Intelligent Gentleman who held a respected position in a successful business house. One day a swarm of bees alighted in his yard and his wife got them into a box. The man was delighted. “We shall have bees for a sideline,” he declared, and promptly sought a friend who was already a sideline beekeeper. “What do I need besides bees, to be a beekeeper?” he asked. “A modern hive and a bee journal,” replied Mr. Allen promptly; and, being persuaded, he sold him a hive. Many months later, “How are the bees?” he asked. “All right, I suppose.” “Get any honey?” “No.” “Put on a super?” “No.” “Been reading bees?” “Well—no.” “Hm,” said Mr. Allen.

In the spring of 1918, being again persuaded, he sold the man a super, put the foundation in for him, and even put it on the hive. Fall came. “Get any honey?” “No—I don't believe there's any out there.” Mr. Allen groaned. “Reading much bee stuff lately?” “Well, no.”

And another spring came. The man hunted up Mr. Allen again. “Those bees are all bunched out in front of the hive. What do you reckon's the matter with them?” “I reckon they need room,” was the reply. So the man took off a superful of sealed honey gathered the season before. He was delighted. Beekeeping was certainly worth while—look at his honey—and not a bit of trouble. So he became ambitious. “Couldn't I put some of those bees in another hive and have two?” “You could,” Mr. Allen admitted, “if you knew how.” Whereupon he was invited out to do it. He made up a nucleus, explaining things meantime to his friend, who hovered on the outskirts of the operation, closely veiled and gloved, and in spite of the warm weather, wearing a coat with collar upturned. “And you can add more foundation as they need it,” concluded Mr. Allen. “Oh, go ahead and add it yourself,” protested the gentleman amiably, “and come on in to dinner.”

The moral is merely, **Don't** be that kind of a sideliner.

* * *

WHO'S DREAMING ME?

A Misty April Fancy

So soft, dear Day, so still and gray
  Your magic-dripping mist,
You fold me close in quietness
  Too tender to resist.

Around my world your mist lies curled
  So clingingly and deep
I feel as tho I were a dream
  All wrapped around with sleep.

If dream I be, who's dreaming me
  In drowsy mist opaque?
I wonder, too, if I'll come true
  When Something shall awake!

FROM NORTH, EAST, WEST AND SOUTH

In Ontario. With snow still covering the ground at this writing (Mar. 10), prospects look good for the clovers coming thru in good condition. The weather has been steadily cold ever since Dec. 1, and, no doubt, bees will suffer in many cases, especially where they are wintering on natural stores or where stores are deficient. In some parts of southern Ontario the bees had a flight on March 5, but north and east of Toronto no bees have been out since late last October—over four months' steady confinement, with very cold weather all the time for more than three months.

Since last writing, sugar has again advanced another $2.00 per hundred and is now quoted $16.71 at Toronto. Where the end is going to be, is still a question. Some dealers, with whom I have talked on the subject, predict lower prices by May, while others say it will go still higher. So, I suppose, one man's guess is as good as another's. I am sorry to say that honey, especially dark grades like buckwheat, is not even holding its own; and for the first time, at least in my experience, honey can be bought wholesale at a lower price than sugar. Just how long this condition will last is a question. In view of the great number of people going into beekeeping, assuming that even the average number make good, as intimated in a recent issue of this journal, something will have to be done in the near future to stabilize marketing and other phases of the business. However, the matter will, I suppose, automatically adjust itself to a certain degree; for, aside from all manipulations of various organizations, I still believe that supply and demand are the chief factors that affect all kinds of merchandising. But that does not say that demand cannot be increased, and to my mind that is the most feasible and legitimate way of helping the business along. Some kind of united effort should be made to place the value of honey before the consuming public; for, altho many families do use honey, unfortunately a much larger number do not recognize it as a food but rather as a luxury or a medicine.

A deputation of Ontario beekeepers recently waited upon the Minister of Agriculture for Ontario, asking an increased grant for inspection work and also for money to start a queen-rearing establishment under the jurisdiction of the Provincial Apiarist, for the purpose of raising Italian queens of a highly resistant strain for use in districts where European foul brood is prevalent or just starting. In many districts black bees are still in evidence, and pure matings are out of the question. During the last few seasons the demand has been so great for good Italian stock that in many cases queens could not be procured, and much loss occurred as a result. It is the purpose, in case the grant is received, to put the proposition on a self-sustaining basis, as beekeepers will be quite willing to pay a fair price provided they can get the queens. Hon. Mr. Doherty gave the deputation a courteous hearing, and, while promising nothing definite, hopes are entertained that the request will be favorably received. A serious thing just at present is that finances are strained to meet all obligations, and the Government naturally wishes to be very careful in the matter of funds, especially since the election was won largely on a policy of economy and conservation.

Here's hoping that the balmy springtime will soon be here again; and also a hearty good wish towards one and all of our readers that the busy season ahead may be filled with not only work but good returns for our labor and, above all, with a sense of our duty to the millions of suffering people in the world today, and a profound feeling of gratitude towards the great Creator for allowing us to live in this wonderful place of peace and prosperity, Canada and the United States of America.

Markham, Ont. J. L. Byer.

* * *

In Iowa.—At the Mitchell County annual meeting at Osage, held recently, plans for the work of the coming year were outlined, which include the co-operative extension work in beekeeping and the establishment of a demonstration apiary. A tentative date, July 10, was also set for the summer meeting.

Many requests are being received from parties who desire to buy bees. People who are becoming interested in bees this year may be divided into three classes; those who have kept bees in the past and failed but have a revived hope, those who know nothing about the work but feel that beekeeping may be a get-rich-quick scheme, and those who are carefully preparing to grow into the business. The first two classes are in for disappointment, as beekeeping requires an ample investment of brains, money, and labor. The beekeeping industry of this State needs more wide-awake honey producers; the nectar is available, and returns can be expected when the business is conducted on a firm basis. But no encouragement is held out to those who want to buy bees and consider such effort sufficient to be rewarded by returns of honey.

From the correspondence it would seem that a very large amount of package bees and nuclei will be purchased in the South. Many have had very satisfactory results with package bees, and the practice of making increase and repairing minor losses by such purchases is rapidly increasing.

Special attention will be given by the Iowa State College to summer meetings with county beekeepers' associations, doing a small portion of the work that had been planned for the beekeepers' school which was to have been held at Ames. The idea is to have the all-day meeting and picnic held at a conveniently located apiary. Special programs will be arranged for these meetings, and in some counties two meetings will be held on successive days. Arrangements for meetings must be made early.

There is still some honey held by a few of the larger producers. A little concern is felt at times over the honey market, but the available honey for trade purposes is comparatively small. There are many people who are now trying to buy honey to supply this trade. Those who have built up a year-around trade seldom have enough honey to supply the increasing demand. To increase properly the use of honey in the homes it will be necessary to supply trade every day in the year. It is much easier to keep a trade than it is to build up one each year. Too many beekeepers fail to study markets, the honey for sale now being in two 60-pound cans, whereas the trade is willing to consume six 10-pound pails. The increased cost of putting honey on the market as is demanded, will be returned. Those who are developing an exclusive trade with a ''brand'' honey are now looking about for honey to carry them thru the season. It pays to put honey on the market in the manner that the trade desires.

A campaign for ''Better Queens'' in the colonies in this State has been started by the Iowa State College. The scrub queen is a menace to the industry—banish it. A small amount spent for a good queen will be returned several fold in the honey returns.

Plans are practically completed now for the honey exhibit at the Mid-West Horticultural Show this fall. The outstanding feature of the premium list is a very large prize for the best exhibit by a county association. This is an entirely new feature, and associations are urged to start their plans now for entering a prize-winning exhibit at this show. Prizes for individual exhibitions will be far more attractive than ever before; so every beekeeper will find it worth while to contend for these prizes.

Ames, Iowa. F. B. Paddock.

* * *

In Northern California.—Our district a month ago reported a very serious shortage of rainfall. The conditions at present have somewhat improved, but the moisture content of the soil is yet far below normal, so that plant growth at this time is backward and does not show its normal vigor. In the northern part of our section the rainfall is about one-third of the normal, and in the southern part is almost half the normal. Altho likewise below normal, southern California has received considerably more than we have. Almonds have now been in bloom for two or three weeks, and the weather during this time has been exceptionally fine, enabling the bees to build up quickly. Most colonies (those that were left with ample stores) have the equivalent of seven to eight frames of brood today (Mar. 5). The almonds will last about two to three weeks longer, after which time the bees should be in splendid shape to go to either the oranges or the mustard.

Your correspondent notes with satisfaction the editorial on ''The New and Old National'' in the March number of Gleanings. The criticisms that have been made to the editor are in accord with my remarks in my letter in the February issue of Gleanings. As Western beekeepers, we should consider it absurd to expect our Eastern brothers to help us dispose of our products in their home markets. The East and the West must have some point in common, a problem that concerns both alike, that is, a protective-tariff and not a marketing problem, before a co-operative movement between the two should be considered.

On page 167 of March Gleanings the editor gives the name and address of a Carniolan queen-breeder, one Jan Strgar, and comments that Gleanings knows nothing of Mr. Strgar and, accordingly, will assume no responsibility concerning the information given. In the spring of 1911 the writer purchased from Johann Stregar of Postwocheiner Festritz, Oberkrain, two Carniolan breeding queens. The queens so purchased arrived in due time, and, of all the importations that the writer has received, none have given better satisfaction than the two above-mentioned queens. These queens were 32 days on the trip, were shipped in excellently made cages, and not a single attendant bee in either cage was found dead upon arrival. If Jan Strgar is the same as Johann Stregar, and it seems likely that he is, the writer can heartily recommend him as a Cariolan queen-breeder.

Modesto, Calif. M. C. Richter.

* * *

In Southern California.—Prospects for honey in southern California have improved very much since my last report. The weather has been warm and balmy, and the rains have been so gentle that every drop has gone into the ground. Some localities report as much as 15 inches of rain for the season, which we consider sufficient to assure some honey.

Many beekeepers are looking for a very early honey flow from the orange and black sage, but much depends upon the weather conditions. Some sage in favored locations is beginning to bloom, and the orange buds are swelling. Bees that have had plenty of stores are generally in good condition, with not any more disease than is usually found at this time of the year.

FROM NORTH, EAST, WEST AND SOUTH

Apiarists still continue to move their bees to the orange groves. The last car to arrive from Utah was unloaded late in February at Riverside. Some of our back-country beekeepers who have their bees on the sage and wild-buckwheat locations are moving now, while others will wait until the oranges are just beginning to bloom—which usually occurs the last of March or the beginning of April. The time of moving is a matter of choice with each individual beekeeper. In some cases where there is little else than the citrus trees, pollen is likely to be scarce and brood-rearing conditions not of the best. Therefore, when bees are located on a range where there are good conditions for building up; or, in other words, where there is early bloom such as willow, eucalyptus, or alfilaria, colonies are often allowed to build up before being moved near the orange groves.

Considerable difference of opinion exists among the beekeepers concerning the probability of getting a normal crop of honey from the oranges. I feel safe in saying that never before, in the last 25 years, has there been so much off, or out-of-season bloom on the orange groves of southern California. Whole groves in different localities have been in full bloom at various times since last fall, while one could find considerable bloom at any time. Whether this bloom will make mature fruit and the trees return to normal next year is a matter of conjecture. With one of our heavy honey flows, this off bloom might make but little difference, but with the increased number of honey-gatherers this year, it may make considerable difference in the tonnage.

The Riverside County Beekeepers' Club held its annual meeting in Riverside, Feb. 28. The same officers were elected for another year, namely: R. Powell, president; Chas. Kinzie, vice-president; and Lester Bamberger, 607 Chestnut St., Riverside, secretary-treasurer. Fifty dollars in cash besides donations of hives, foundation, etc., was voted by the club to be given for the French-Belgian Beekeepers' Relief Fund. A committee was appointed to put on a bigger and better exhibit that ever at the Southern California Fair to be held in Riverside next fall. A reservation of 100 feet and cash prizes of $225.00 were asked for from the fair management.

In getting a colony ready for the honey flow, it is quite necessary that it should have plenty of stores to carry it well into the honey flow. A colony that is found to be queenless or that has a drone-layer, is often of more value if put above a normal colony. Especially is this true, if the normal colony is light in stores and the poor one is well supplied. Sometimes it is advisable to place a good brood-comb between the brood and the comb containing pollen and honey. We have discontinued the practice of the placing of empty combs directly in the brood-nest. If one has the time, good results are often obtained by placing all sealed brood in the center of the brood-nest and the larvæ and eggs toward the outside. This leaves the hatching bees and empty cells in the center of the hive and keeps the nurse bees near the outside, thereby providing one of the conditions tending toward swarm prevention.

Corona, Calif. L. L. Andrews.

* * *

In Michigan.—The College Short Course was the surprise of our lives when the registration showed 60 per cent women. Surely modern aspects of beekeeping have broken down old traditions.

The tendency is strongly away from cellar wintering. This is not because beekeepers have less faith in cellars, but because they are learning that many of their cellars are not fit for wintering. David Running surely did a great service to beekeeping when he made public those principles of cellar structure which he found to be essential to the greatest success.

As the result of poor wintering there will be many weak colonies. The common practice of uniting a number of weak colonies in an attempt to make a few strong colonies is very poor beekeeping. Unite the weak colonies with the moderately strong ones. By so doing the average strength of the whole yard is better, and the number of colonies remaining is larger. Before uniting, examine very carefully both colonies for disease. Later on, when the colonies become strong a nucleus can be removed from each one. Thus the original number can be retained and some surplus honey secured.

This month brings to a close the two-day beekeepers' schools. Because of the epidemic of influenza and because of conflicts with other meetings, the original number of 63 schools as planned was cut down to about 40. The interest and enthusiasm everywhere manifested and the fact that so many more persons can be reached, have brought about the decision that hereafter there will be no winter short course at the College, and all our efforts will be along the lines of county schools of instruction. This will be carried on in the summer in the form of one-day outdoor field meetings.

All the traditions of a January thaw were broken down this year, and the cold has continued unabated into March. Up to this time there has been no flight since Nov. 17. On a few days it has warmed up enough so that a few bees came out. In general, only a small part of those bees ever got back into the hives again. Probably,

FROM NORTH, EAST, WEST AND SOUTH

the colonies are better off to be rid of them, as they were the ones which were suffering most from their long confinement. Recent examination of the colonies in several well-kept yards wintered outdoors shows that nearly all colonies are doing well in spite of the fact that they have not had a flight for over three and one-half months. It was very noticeable that those colonies which were run for comb honey last fall are suffering most. Surely, it was a serious mistake to produce comb honey last fall when brood should have been reared in abundance for the winter cluster.

In some parts of Michigan the dandelion and fruit bloom is so abundant that soon after the flow begins the queen becomes crowded and brood-rearing is restricted. Often swarming follows. We cannot afford a restriction in brood-rearing at this time, because whether swarming follows or not it results in less workers for the clover flow. This year if your bees are in one-story hives, try putting another brood-chamber under the first at about the beginning of fruit bloom. This will give the queen an abundance of room and also leave some for storage of honey. In many parts of the State dandelion yields in such abundance as to constitute a source of surplus honey. The reason that it is not usually secured, is either the colonies are too weak, or there is no room in the hive for storing surplus. Each year for the past three, good colonies in the vicinity of Lansing have stored on the average 25 pounds of surplus extracted honey from dandelion. In many counties of the State dandelion would constitute a major honey flow if our bees were strong enough to get it. B. F. Kindig.

East Lansing, Mich.

* * *

In Minnesota.—It was a great disappointment to Minnesota beekeepers that the Short Course which was to have been given at the University Farm by Dr. Phillips and his staff had to be postponed on account of the flu. We understand that it is planned to hold the course some time next fall.

One of our progressive beekeepers, A. W. Knapp, has passed away. He was a good man and loved by all who knew him. Some years ago Mr. Knapp gave up an important position in business life because of failing health and turned his attention to beekeeping. He was a close observer and an enthusiastic beekeeper. We shall miss him at our State and county gatherings.

It seems to be the same old story over again, "faulty census work." As in other States so in Minnesota. The bee and honey industry was passed over by the census takers as of no special importance. We had been told that "higher ups" were looking after the matter to see that the census blanks contained the necessary questions in order that the fiasco of 1910 might not be repeated. Evidently we were misinformed.

Minnesota beekeepers will probably be able to secure all the sugar they need for spring feeding, provided they are willing to pay the price. The State Department of Agriculture has made a thoro investigation of the sugar situation in the State, and without doubt would have been able to have kept prices down somewhat, had it not been for the confusion caused by inconsistent rulings of the U. S. Department of Justice. The State Department of Agriculture has published the results of its findings in a bulletin. The paragraph which gives the reasons for the varying prices of sugar is exceedingly interesting, but it is too long to give here in full. The closing sentence reads, "In fact with no basic sugar price and no restrictions or regulations by anyone, prices and profits are in a hopeless state of confusion."

Conditions for a good honey flow this year in Minnesota seem to be ideal. There was plenty of moisture when the ground froze in the fall and a heavy coat of snow on the ground all winter. The discouraging side has to do with the condition of the bees. Scarcity of sugar last fall left many colonies with insufficient stores, and many with poor quality of honey. Also the severe cold weather which came before the bees were put in the cellar certainly tends to make matters worse. The demand for bees is large, and it will pay well to give the colonies extra attention this spring. See this column in the April, 1919, number, page 238.

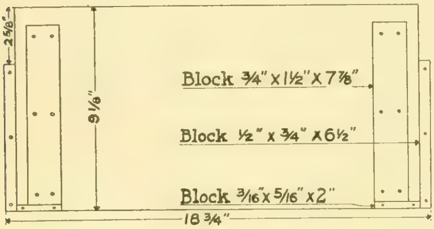
During the past winter we have heard of a number of Minnesota amateur beekeepers who are planning to go into beekeeping on a larger scale. They are planning, of course, to start right. Their attention has been called thru advertisements to the aluminum comb, and now that one of the popular magazines has given a very fascinating "write up" on the subject, we imagine that the amateur who is thinking of increasing the number of his colonies will feel that here is a great opportunity to get combs that are ready for the bees to use and that will not have to be destroyed in case American foul brood overtakes him. Now we suggest that you "prove all things and hold fast that which is good." During the last two seasons the writer has had two of these combs in use in his own apiary and sees no good reason why he should increase the number. These combs were purchased in April, 1918, and it is possible that the comb has been somewhat improved since that date. Anyway, whether that be true or not, we would suggest that the amateur who is planning to use them try only a few to begin with. Chas. D. Blaker.

Minneapolis, Minn.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Here is a Good Frame-nailing Device. I have recently made a frame-nailing device, which I find very convenient and hope it will prove valuable to readers of Gleanings.

It is made as follows: Take a board ¾ inch thick, outside dimensions to correspond with total depth and length of a Hoffman self-spacing frame, cut ½ inch in from the end and 2⅝ inches down from top at two corners. Take two pieces ½ x ¾ x 6½ inches and nail or screw to board just outside of end-bars of frame; take two pieces ¾ x 1⅓ x 7⅞ inches and nail or screw to board just inside of end-bars of frame; take two pieces 3/16 x 5/16 x 2 inches and nail to board with one end to the ½ x ¾ x 6½ piece. The board is now complete.



Nailing device ready for frame.

Take the top-bar of frame and lay upside down on the bench with the corner-cut groove away from you; put on end-bars and place in nailing device; turn the board on edge with the top-bar down and nail the bottom-bar; reverse the position of the board and nail thru the top-bar into the ends; stand the board on end and nail thru the ends into the top-bar; lay the staple block on and drive the staple; grasp the frame with the forefinger, with the thumbs resting on the blocks inside of the frame, and pull the frame from the device. The frame will be rigid with square corners.

Device with frame in place.

West Chester, Pa. L. Clarence Coxe.

* * *

Loss by Spray Poisoning or Milkweed? The majority of beekeepers here last spring lost from 50 to 100 per cent of their bees, unquestionably due to spray poisoning. In my own case I have not entirely lost any colony, but have noticed a great reduction of bees in all of them.

I attribute my luck (for it it nothing more than luck) to the fact that I had all young queens in my hives, and also that I fed a little to all colonies thru the spring. My idea is doing so was to get a large force of young bees in the hives by the first of July. The result was that I had young bees enough to maintain the colony, even tho the field force were destroyed.

This spraying is a serious thing for both beekeeper and fruit-grower. If they don't spray, the fruit isn't salable. Most orchards have a cover crop of alfalfa. Whether it is the spray falling on the alfalfa blossoms, or whether it is some sweet substance in the lead arsenate, or whether the lead is sweet enough in itself to attract the bees to take the fatal dose, are the main questions here. It is impossible to find a cluster of milkweed without dead and dying bees about it. The bees apparently haven't energy enough to free themselves from the sticky milkweed. C. H. Ponting.

Prosser, Wash.

* * *

Secretion of Nectar Not a Matter of Chance. Insect-pollinated flowers, as alfalfa, white clover, and buckwheat, may often secrete nectar freely in one locality and not at all in another; but this is not true of strictly wind-pollinated flowers. The pollen of the alders, birches, poplars, oaks, hickories, beeches, and elms is carried by the wind, and the flowers never produce nectar in any part of the world. They are far better served by the wind than would be possible by insects; for the number of individual trees is so large, the birches forming vast forests, that the flower-visiting insects are not numerous enough to perform properly the work of pollination. Furthermore, as in most of the species the stamens and pistils are in different flower-clusters, in the absence of pollination no seed is produced, since self-pollination is impossible. Thus the secretion of nectar would be of no advantage to the bloom of many hardwood trees, as they are compelled to rely on the wind.

This is also true of the wind-pollinated grasses. Of the several thousand species not one in any part of the world ever secretes nectar. The number of flowers they produce annually is beyond the power of imagination even to picture. It is fortunate, indeed, for humanity that the cereals or grains are wind-pollinated, for there are not flower-visiting insects enough to perform this service for the many millions of acres of corn, wheat, oats, rice, barley, etc.

Wind-pollination is older by many million

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years than insect-pollination, and it was not until after insects began to visit flowers that the secretion of nectar became of importance. J. H. Lovell.

Waldoboro, Me.

* * *

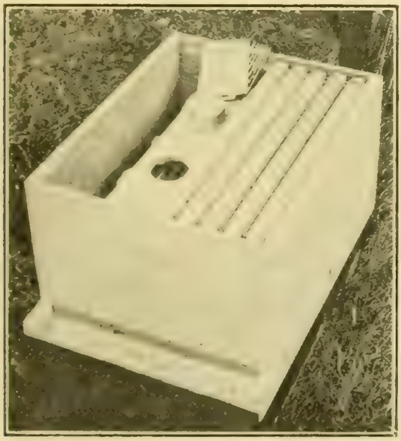
Reply to Fowler on Breeding from the Best. In reply to C. C. Fowler's remarks in the last issue Dr. Miller wishes us to call attention to the fact that if one **continually** breeds from the **best** queens, the drones will all have the best grandmothers and will, therefore, be the best drones.—Editor.

* * *

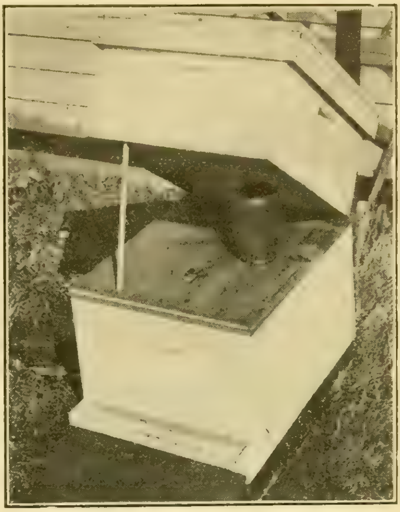
How to Handle Pound Packages in Cool Weather If the weather is cool at the time of arrival, it will be found that the bees from the packages refuse to take the feed from the feeders when the feeders are placed at the entrance or in the lower part of the hive. This difficulty may be overcome by placing the feed above. Prepare the hive with four or five frames of drawn comb or foundation with the entrance contracted and covered with a piece of queen-excluding zinc. Also prepare a Mason fruit jar of feed (one and one-half parts of sugar to one part of water) with 12 to 20 holes pierced in the cap. The holes should just admit a pin. In the inner cover to one side, with an expansion bit, bore a hole 2⅞ inches in diameter. Set the hive in place, shoving the frames to one side, and place the package of bees beside the frames. Then pry off the lid from the package and sprinkle a few drops of the syrup on the bees and along the top-bar of the frames. Invert the inner cover over the brood-nest and place the feeder in the hole in the cover. There should be a ¼-inch space underneath the feeder. Surrounding the feeder should be placed an empty body, and over this the outer cover.

The bees will soon crawl out of the package and take the feed. After two or three feeds if no honey is coming in, change the cap for another one that has three holes. On the next day after arrival a frame of brood, if obtainable, may be given to the bees.

Medina, O. J. E. Thompson.



The package of bees is placed beside the frames.



Hive with feeder in place ready for the empty body and outer cover.

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Points of Decided Interest in a Jamaican Report. The annual report of the Department of Agriculture of Jamaica states that during the past year 188,000 gallons or 1,175 tons of honey were exported to the United Kingdom at a value of £154,700 (about $541,450). It is interesting to note that this is greater than either of the two of Jamaica's major products, cacao and cocoanuts.

Our readers will doubtless remember an article that appeared in Gleanings last July, written by the Government Inspector of Apiaries, Ch. Noel Eddowes, in which were explained the radical measures taken by the government to stamp out American foul brood at its first appearance at Kingston harbor where bees robbed diseased honey from a vessel at anchor. All colonies, the total numbering 1,719, within three miles of Kingston, whether such colonies were diseased or not, were burned, the owners compensated, and no colonies allowed in this area for a year. The government report states that there is every reason to believe this prompt and drastic action has effectively stamped out the disease, and bees will

HEADS OF GRAIN FROM DIFFERENT FIELDS

again be allowed in the prescribed area on Jan. 14, 1920.

During the past two years, for fear of introducing ''Isle of Wight'' disease, the importation of queens from the United States had been prohibited. This order is now withdrawn.

The better to protect the beekeepers of Jamaica, the Department is considering the appointment of a traveling inspector to promote honey production in all sections of the Island. Also, strict rulings have been made concerning the shipment of honey. All honey on vessels in Kingston harbor must be properly screened from the bees. Foreign honey in port can be shipped only at night. An inspector is to supervise such transshipment and water is to be kept constantly sprayed over the exposed casks of honey. In this connection the report mentions that when the Haytian gunboat ''Centenaire,'' which was equipped as a hulk for the storage of Cuban honey in transit, was found, after the honey had been removed, to be thoroly impregnated with infected honey, the government paid the cost of the vessel (about $1,775) and burned it in August, 1919. The entire amount expended by Jamaica so far in foul-brood eradication is £4,436 ($16,526).

The report states that there is no foul brood nor other dangerous disease of bees known or suspected to exist in Jamaica at the present time.—Editor.

My Neighbors.—By Bill Melvir

(With apologies to Walt Mason.)

My neighbors are nutty, their noodles are putty, they don't seem to learn anything. In spite of my teaching, exhorting, and preaching, their bees are all paupers this spring. They robbed them last season beyond sense and reason; I marvel they still are alive. Instead of brood rearing, gaunt famine they're fearing, with two pounds of honey per hive. The food is so scanty in their little shanty, they've willies of numerous brand. With omens foreboding and worry corroding, the urge of the spring time is canned. Their future looks gloomy, their eyes have grown rheumy from watching the vanishing stores. They size up the morrow as loaded with sorrow as grimly they do up their chores. The queens are unhappy, the workers are scrappy; they've bolshevik notions galore; compelled to be thriftless they soon become shiftless, assuming the role of the poor.

My neighbors are stingy; their methods are dingy; their bees are ne'er sleek and well fed. Their notions are kinky; their feeders are dinky; so nothing is stored up ahead. By feeding and fussing, by smearing and mussing, they keep their poor bees just alive. They go out each morning to give the bees warning, then feed them a spoonful per hive! Now, how in creation with such stimulation can brood-rearing boom in the spring? They're saving a dollar, but later they'll holler, ''The season's a failure by Jing!'' This bummest of saving is rapidly paving the way for no honey in June. They'll sure be disgusted and later go busted from feeding their bees with a spoon. Their cheap - john tin feeders and all such impeders, I would to the junk pile consign. Such hand-to-mouth giving is mighty poor living for bees with ambitions like mine. With opulence reeking, my bees are now seeking to fill ten or twelve frames with brood. With energy boiling, they're buoyantly toiling because they have plenty of food. Fat combs filled with honey makes feeders worth money; they're worth at least two bones a comb. So, loudly I'm preaching the Doolittle teaching of ''Millions of honey at home.''

GLEANED BY ASKING

Iona Fowls

QUESTIONS. (1) The booklet, "Building Up Colonies," contains an extract from Mr. Alexander on "Rearing Queens for Early Increase." On page 11 he speaks of the subject as follows: "Then about May 15 we borrow the bees from several of our strongest colonies for one day to start queen-cells, as is now practiced by Mr. Pratt, etc." How does he "borrow the bees," and how does he start queen-cells in one day? I have raised many queens but do not know how to start queen-cells in one day without queen jelly. By this method can cells be grafted from select stock? (2) Suppose I have a two-story colony, each story having about the same amount of brood. I divide them by inserting an excluder between the two stories. In 10 days I wish to transfer the queen to the queenless portion of the colony. Is it safe to do so without destroying the queen-cells if any are built? (3) Suppose the queen is confined in a cage within her own colony for 10 days may she be released without destroying queen-cells, or even if cells are destroyed may it be done immediately, omitting the regular method of introduction? (4) What is the best way of cleansing old hard propolis from an Alexander honey sieve pail?

Indiana. H. B. Wilson.

Answers.—(1) On page 494 of the August issue of Gleanings for last year you will find these questions answered in an article on the Pratt or Swarthmore System. Mr. Alexander, when transposing the young larvæ, took up a little food with them, and therefore did not need to use royal jelly from a queen-cell. (2) It may be that you will find no queen-cells have been started; but if any are present, they should be destroyed before the queen is released above. (3) If the queen is confined in a cage within her own colony for 10 days, it would be safer to destroy the cells and introduce in the regular way. Otherwise the queen may be balled. (4) An easy way of cleaning the propolis and wax from an Alexander sieve pail is to immerse the surface in a hot solution of lye.

Question.—Last spring I had a hive that sent out a swarm one day, but they remained only a short time in a cluster when they returned to the parent hive, probably because the queen was not with them. The next day I watched them closely expecting them to swarm again. Fortunately, I was right at the hive when they began to issue. Presently I was surprised to see the queen coming out very reluctantly, being pushed along by the workers. When about two inches from the hive entrance on the alighting board she escaped from her captors and rushed back into the hive, but in a few seconds they pushed her out again, and then I picked her up in my fingers. However, this being the first queen that I had ever held in my hand, I let her escape and she joined the swarm. Now, is it the usual thing for the workers to force the queen out with the swarm or does she usually come out of her own will? I have never seen anything about this subject in the books or journals.

Arkansas. C. M. Thompson.

Answer.—We have never noticed the bees actually forcing the queen from the entrance. Are you certain the bees deliberately attempted to push her out, or in the bees' mad scramble in leaving the hive, was she unintentionally jostled out of the entrance?

Question.—I was working with a hive one day when I saw the queen on a comb that I was holding in my hands. I called my wife. We watched and admired her as she moved about the comb. She was a beautiful thing and did not appear the least alarmed by being held up to the light to be inspected, but moved about as if nothing unusual was happening. The workers were quietly walking around with her when, to our surprise, she began to deposit eggs in the cells. She would examine a cell and then draw up her abdomen under her and thrust it down into the cell and deposit the egg and then move on to another. This continued for several minutes right there under our eyes while I was holding the frame in my hands. The moving of the frame about did not seem to disconcert her in the least. Do queens often do this or is this an unusual thing?

C. M. Thompson.

Arkansas.

Answer.—Yes, queens may often be seen laying eggs, especially if one has a good strain of Italians and does not smoke them too much. In fact, we have even watched laying workers deposit their eggs and have seen as many as three laying in cells on the same side of the comb, all three laying at the same time.

Question.—"Between the upper and lower hives may be placed a screen" (page 674, October Gleanings). Do you provide an entrance for the nucleus during the two days the screen is between? If so, how?

C. E. Hinds.

Missouri.

Answer.—An entrance is left above at the back of the hive.

ONE ANSWER BY DR. C. C. MILLER.

Question.—Having become satisfied in my own mind that I have discovered and formulated your will-o'-the-wisp, namely, the primary cause of natural swarming of bees, I am writing to tell you about it. I am having this formula as discovery certified with my attorney under date of Jan. 15, 1919, as that is the date I reached my conclusions—not that I expect to make any money out of it, for I do not; and I want every one who is interested to try out plans to make it a success. Swarming is due to the accumulated irregularity of the emergency of brood. To explain, first comes the lack of larvæ to receive the larval food. This, in turn, is due to a decreasing number of eggs laid by the queen, which is due to the scattering condition of vacant cells, and this is due to the accumulated irregularity of the emergence of brood. I am quite satisfied that this explains why Alexander's plurality of queens produced non-swarming colonies. A number of queens could keep up the supply of larvae, even tho the vacant cells were scattering.

Wisconsin. Edward H. Burns.

Answer.—Your theory is just a little after the manner of a theory advanced some years ago in Germany, which holds that the nurse bees become too numerous for the brood, or the brood too small in amount for the number of nurse bees, the nurse bees become overloaded with prepared pap, and the use of excess food goes to rear drones and queens. This, you will see, agrees with your saying, "first comes the lack of larvæ to receive the larval food." Altho there is nothing new about it, not much has been said about it on this side of the water.

Question.—I tried to make some candy for my bees by the recipe in the December Gleanings, and am ashamed to say I read the directions wrong and used a tablespoonful of tartaric acid to twenty pounds of sugar instead of ¼ teaspoonful to that amount as directed. Will this extra amount of the acid injure the bees? Chas. A. Ford.
Virginia.

Answer.—Altho we have never used as much tartaric acid as that, we really do not think that it would cause any trouble, except that it might make the candy a little too soft. For this reason we would prefer to use a harder candy early in the spring, and then when it gets a little warmer use the soft candy, feeding on the bottom-board, at the back of the hive. Early in the spring the bees would probably not take it from the bottom-board, since it would be too cool there; and we do not consider that it would be safe to place it over the tops of the frames, for there would be danger that it might become soft and run down over the bees and brood, killing the brood and possibly stopping up the entrance and smothering the colony. When feeding a soft candy on the bottom-board as we suggest, the hive should be tilted slightly backward so there will be no danger of the entrance's becoming closed. In the next candy that you make we advise that you use only one-third of a teaspoon of tartaric acid for 10 pounds of the candy. Recent experiments have convinced us that this is a better proportion than that given in the December Gleanings.

Question.—A recent issue of the Reading Eagle tells of the plight of a fellow beekeeper, Louis Hermann of Sinking Springs, Pa. A few of his neighbors made a complaint to the mayor because Mr. Hermann's bees, when flying in cold weather, lighted on neighboring washings and soiled the clothing, leaving small yellow spots. Can the court decide that Mr. Hermann must remove his bees to another location? I live in the suburbs and keep 10 colonies for pollenizing my 300 fruit trees. Last summer several complained that my bees damaged their peaches, but they agreed with me that they had more peaches last year than they ever had before. I therefore claim my bees are no nuisance. If my bees prove profitable, I had intended to increase, but do not care to if there is a likelihood of my being compelled to get rid of them for damaging fruit or soiling clothing.
Pennsylvania. Andrew M. Seibert.

Answer.—There have been many instances in which suit has been brought against some beekeeper whose bees have troubled his neighbors. In such cases the beekeeper usually wins the suit. We don't think anyone should be deterred from keeping bees simply because of the possibility of a neighbor's complaining. If the beekeeper will take reasonable precautions he can usually avoid any such trouble. The fruitmen in your locality will, doubtless, within a short time become convinced that your bees are really a help to them; and, as for the other instance you mention, if the bees have had no flight for some time, and then the weather turns warm on wash day, it would be a good policy for the beekeeper to caution the near neighbors, advising them not to hang out the wash during the warm hours of that particular day when the bees are flying. If he explains that this sort of thing occurs only at rare intervals, and that he is very sorry that it has been on wash day, we believe he will find his neighbors quite reasonable. We have known of many beekeepers who kept colonies in town for years and yet continued on the best of terms with their neighbors. In general, we may say that most of the trouble with neighbors may be foreseen and avoided.

Question.—Do you think May 1 would be too early to order package bees?
Wisconsin. E. K. Chappey.

Answer.—The bees should be ordered as early as possible, and May 1 is none too soon to receive them. Altho it is not necessary to give them brood, yet a little brood helps them wonderfully in building up. If you could get the bees by the middle of April, or a little later, we believe you will be able to build them up in time for your clover flow.

ANSWER BY E. R. ROOT.

Question.—From what you say in Gleanings I understand that combs with foundation splints will not do for extracting-combs. I didn't know that, and so have been using them for extracting. Will you kindly tell us how you found out they cannot be used in that way? C. C. Miller.
Illinois.

Answer.—I can readily understand why you have no trouble with your frames having splints for hand-extracting. You have a hand-driven two-frame extractor, and at your age, you would not be handling the combs very roughly. I had in mind combs handled by a power extractor, running at a high rate of speed, and speed that breaks many combs that are fully wired. While your splints pass thru the bottom-bar, I do not think they have any other attachment to the frame itself. You can see how it would not be possible to use a splinted frame where power extractors are in use operated by careless and indifferent help. My objection to splints has been that while they provide against vertical sagging they do not hold the combs in the frames as securely as wires; but, for your purpose, they would be just as good and better. I have seen many combs broken in large extracting-yards, even when they were well wired. A splinted comb would stand little show in such cases. Power machines are built to stand a much higher speed than is possible to get out of a hand-driven machine. Beekeepers who run large yards run their combs to almost the breaking point. For that reason they want wires fastened to the frames. I know of no large extracted-honey producer who uses wood splints. [See page 210 of this issue where Dr. Miller has the last word.—Editor.]

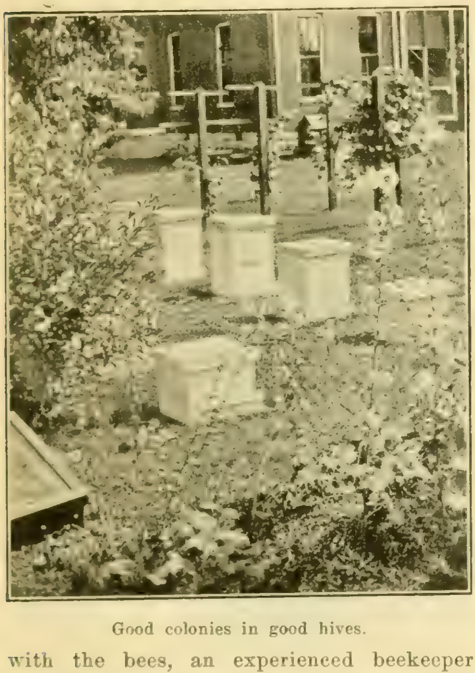
TALKS TO BEGINNERS

By Iona Fowls

IN our first lesson we indicated briefly the different ways in which one may purchase bees. This was only to help the beginner in making his plans for obtaining the colonies. In the spring as soon as a little honey is coming in and the bees flying freely, probably May in Northern States, the colonies may be obtained and taken home. It is, therefore, necessary at this time to explain a little more fully concerning their purchase.

How to Purchase.

It will be remembered that **we strongly advise the purchase of good colonies in good hives,** if possible, otherwise good colonies in poor hives or swarms to be hived in the beginner's new hives, or pound packages of bees. Whenever combs are purchased with the bees, an experienced beekeeper should be taken along with the beginner to decide on the value of the colony and whether or not the bees are healthy.



Good colonies in good hives.

If in healthy condition, their value will depend entirely upon the size of the colony; the age, prolificness, and strain of the queen; the condition of the combs, whether crooked, or full of drone cells, etc.; the amount of stores contained in the combs; and the condition and style of the hive.

Pound Packages.

If obliged to buy from a distance, the safest and best way is to buy the two- or three-pound packages, which are wood and wire cages containing bees but no frames nor combs. A smaller package than two pounds should not be purchased. With each package should be ordered a queen to be introduced by the shipper. In the North such packages, if obtained in April or May, are easily built up into good colonies if one follows the directions that accompany the package. Also see page 205 of this issue.

The packages must, of course, be kept supplied with stores until the honey flow. It is to be hoped that the beginner may purchase at least one full colony from which he may take one frame of sealed brood to give his package-bees. Also, if they can be given frames of comb instead of frames of foundation, they will build up much more rapidly. A two-pound package should have at least four combs, and three-pound packages six. More may be added later as the small colony increases in size. These combs should be shoved over to the side of the hive and a division-board placed at the inside. Crowding the frames over to one side like this gives a smaller space for the bees to keep warm and, therefore, results in less danger of the brood's chilling on cool nights. Also, the hive entrance should be contracted to but a small opening and covered with the piece of queen-excluder that comes with the package. The use of the excluder prevents the nucleus from swarming out and leaving, and the contraction of the entrance keeps the brood from chilling and prevents robbers from entering the hive. Bees from other colonies near sometimes overpower a small nucleus and steal their stores; but, with a small entrance ⅜ by ½ inch, the bees of the nucleus can more easily repel such unprincipled invaders. Of course, after the colony builds up a little, the entrance may be somewhat enlarged.

Good Colonies in Old Hives.

Sometimes it is possible to buy good colonies in old hives so neglected that the combs are built all crisscross and are quite immovable. The main objection to such a purchase is the trouble of transferring into new hives and the danger that the combs may be contaminated with foul brood (a disease that affects the brood only). If the combs are immovable, they cannot be examined to make certain that the brood is all right.

For the sake of those, however, who may feel obliged to buy in this sight-and-unseen way, we shall explain later how such colonies may be moved home and transferred to modern hives.

Buying Swarms.

Very good colonies may sometimes be secured at a low price by leaving hives containing necessary fixtures with some farmer beekeeper, with the understanding that whenever the bees swarm, the farmer will hive such swarms in these hives and keep them for the beginner until he finds time to take them home. Yet, in this case, the farmer's colonies might not swarm early enough, and the beginner, therefore, not obtain his bees soon enough to start beekeeping at the first of the season and might obtain but little honey the first year.

Good Colonies in Good Hives.

The very best way of all to purchase bees is to buy them from a reliable breeder or from some beekeeper near home, and to buy entire colonies in good standard hives. Under prevailing prices, the cost may seem rather high, but in comparison with the other ways of buying we believe the beginner will find buying good colonies in good modern hives by far the best investment.

Moving the Colonies.

After purchasing the colonies, the next problem is to get them home. Now, when bees first fly in the spring they circle about the hive, marking its exact location in regard to its surroundings. Later, if the hive is moved a short distance, the bees, not realizing that their hive has been moved, will return to the same spot and, being unable to find the hive, are lost. With the exception of bees in a swarming condition, those colonies moved less than a mile will generally lose many of their bees. For this reason, certain precautions must be taken when moving bees.

If one wishes to move from some near neighbor, only a short distance, the hive should be moved to a place two or three miles away. Then, a few weeks later, after the bees have forgotten their first location, the hive may be moved to the desired spot with no loss of bees. If one wishes to move but a few feet, this may be done with less trouble. Simply move the hive a foot or so the first day, and then every two or three days increase the distance until they are moved a yard or more at a time. The bees seem to get into the habit of expecting their hive to be removed a little further each day.

When necessary to move some distance, the quickest and easiest way is by auto. Sudden lurching or jerking of the combs sidewise might cause them to break, especially if heavy with honey. Therefore, if the road is very rough so that one is obliged to drive slowly, the hives should be placed with the frames crosswise of the car. If driven carefully there is little danger of breaking the combs. When moved a distance, the hives must be specially prepared for the journey in order that they may be well ventilated during the trip.

If care is taken, colonies may be prepared for moving without one bee leaving its hive. The night before or early in the morning before the bees are stirring, remove the entrance-closer and into the entrance shove a stiff piece of screen about three inches by the width of the hive. It should fit tight so that not a single bee can escape. Next, the cover should be gently removed, and a rim two inches deep, covered with wire screen, should be stapled to the hive in place of the cover. This two-inch rim leaves a nice clustering place over the cluster and provides plenty of ventilation, which is so necessary for moving safely; for during joltings of the journey the bees will become so active that the temperature of the hive will be increased considerably, and unless an unusual amount of ventilation is supplied the colony may smother. If moved early while the weather is still cool, they will need less ventilation and the screens may be partly covered if desired. The screened rims and bottoms may be attached to the hives by a long staple at each corner.

When buying bees in old, out-of-date hives, with cracks here and there, special care should be taken to shut the bees in securely and still leave them with plenty of ventilation.

Where to Put the Bees.

On reaching home the colonies may be placed in any convenient place where there is protection from prevailing winds and where there is some shade during the hottest part of the day. Bees always resent the presence of moving objects near their entrance. Therefore, their hive should face away from any path where people are passing frequently. If one is crowded for room, it is possible to keep bees in the attic or on a flat roof, altho this is a rather hot arrangement for both beekeeper and bees. If kept in the attic the hive should be near the wall and should be provided with an outside entrance. Also there should be a window that can be opened for the escape of bees that collect on it whenever the hive is opened.

Purchasing such a swarm as this is not a bad investment.

If possible, however, the bees should be placed outdoors, and the beginner will, we are sure, take pleasure in making the spot out in the garden or orchard a real beauty spot.

First Work.

No great amount of courage is necessary

for opening a hive if one is prepared with his bee-veil and lighted smoker and takes care to remember that bees particularly object to quick motions and sudden jarrings. The hive should never be approached at the front, but always at the back or side. One or two gentle puffs of smoke at the entrance will give the sentinel bees stationed at the entrance a little warning of your means of defence. Carefully remove the outer cover and with the hive-tool inserted at the corner between the inner cover and the hive, gently pry the cover, breaking the propolis with which the bees have cemented the cover tight. Thru the slight crack thus made blow a gentle puff of smoke over the tops of the frames. This smoke will confuse some of the bees so they will be less likely to sting; but most of them will be driven down from the top and will gorge themselves with honey, after which they will prove better natured and more easily handled.

To remove a frame, select the second or third from the side where the queen is less likely to be found; for, if the queen happens to be on the first comb removed, she may be crushed or injured in withdrawing the frame. Place the curved end of the tool between the ends of the top-bars and gently pry one frame loose from its neighbors. Also loosen the opposite end and with the curved end of the tool lift the frame just enough so that the fingers of the left hand may easily grasp the end of the top-bar. Then take the opposite end with the right hand and slowly lift the frame straight up. Frames should be held in a vertical position. When held at an angle or horizontally, the comb is more likely to break from the frame, and the queen also is more likely to fall and be injured, since in that position it is more difficult for a laying queen to keep her footing. When handling the frames, the smoker should be used only enough to keep the bees under control. A few gentle puffs is all that is necessary.

After placing the colonies, the screens on top should be replaced by covers and the entrance-screens removed. The colonies will be rather warm from the excitement of the journey and will need sufficient ventilation; but, if too large an entrance is left, robber bees would be likely to attack them, and in their defenceless condition they would have little chance of repelling the robbers. Probably, an entrance of ⅜ by 8 inches would be about right. The next day or so if it is found that they are short of stores, the cover should be removed, an empty super placed over the brood-chamber, and a cake of candy left on top of the frames. The candy and the tops of the frames should then be covered warmly with burlap or carpet, and the cover replaced. The colonies should all be kept supplied with plenty of stores from now until the honey flow so that they will be in the best possible condition at the opening of the flow. A good candy recipe is as follows:

Put ten parts of granulated sugar in a granite dish and add one part of water. Place the dish over a fire and keep stirring until the sugar is all dissolved. Then bring the syrup to a boil and, without stirring, keep it boiling. Care should be taken not to scorch the candy. When done a spoonful of it dipped up and slowly poured into cold water will form a fine string which is hard and brittle. At this stage the syrup should be removed immediately and poured into paper pie-plates, which have been placed where they are to stand without being disturbed until the candy is cold. Do not scrape the dish when pouring out the syrup. The candy when cold will be hard and transparent, and may then be placed on the brood-frames upside down directly over the cluster.

Transferring from Old Hives.

Those who have purchased colonies in old hives will want to transfer them to modern hives as soon as possible. This work should be done on a pleasant day during fruit bloom or other honey flow when many of the bees are out after nectar. The old method of cutting the worker comb out of the frames and tying it into the new ones is very troublesome, and we do not recommend it to the beginner. The following is a much easier way:

Remove the old hive from its stand, and in its place put a new hive facing in the same direction, and filled with frames of foundation or, preferably, drawn comb. There should be one comb containing a patch of young larvæ (unhatched bees which look like little white worms). If one has no full colonies from which to take this comb with larvæ, he may, with a little trouble, get a piece of comb containing such larvæ from the old hive. After smoking the colony a little, remove the bottom-board and place the old hive over the new, tacking strips on the old hive, if necessary, so that there will be no open cracks between the two hives. Then blow smoke down thru the old story, gradually driving the bees and queen below, after which insert a queen-excluder between the two hives. A few days later examine the lower story to see whether the queen has begun laying below. If not, it is probable she is still in the upper story. To get her below, again place the old hive of brood over the lower hive, leaving out the excluder, and again drive the bees below with smoke, making certain this time that the queen also goes with the bees. Then insert the queen-excluder between the two hives, being sure to leave the excluder right (deep) side up. In 24 days after the queen has been driven below, the brood will all be hatched from the old hive, when it may be removed, and the combs saved to be rendered into wax.

In our next issue we shall describe at some length the inhabitants of the hive and also give directions for important spring work.

JUST NEWS

Editors

THE meeting of the National Beekeepers' Convention at Buffalo, N. Y., Mar. 9 to 11, and the merging of this old organization into the new American Honey Producers' League, has been the big news event in American beekeeping affairs the last month. Accordingly, the Editor of Gleanings in Bee Culture asked a number of those present at the Buffalo convention to report their views and opinions of what took place there. The reports of B. F. Kindig, last president of the old National, of O. L. Hershiser, president of the N. Y. State Association of Beekeepers' Societies, and of R. F. Holtermann, prominent Ontario beekeeper, were the only reports received in time to print in this number of Gleanings, and are as follows:

As Reported by B. F. Kindig.

The program of the National Beekeepers' Association Convention which was held at Buffalo Mar. 9-11, 1920, was carried out as printed with but few exceptions. Thruout all of the program it was evident that one of the chief points of interest to those attending the convention was the new organization, the American Honey Producers' League. The League and its aims and possibilities were thoroly discussed by Kennith Hawkins of the G. B. Lewis Company, C. F. Muth of the Fred Muth Company, E. G. LeStourgeon, president of the League, and by many others who gave their opinions concerning it. From the beginning of the session it was evident that the League had found favor with the honey producers. Without an exception, the beekeepers voiced the sentiment that the time had come to abandon the National Association and support the League. There were those present who did not express this sentiment, but they were not beekeepers. The following resolution was presented:

> Whereas, the American Honey Producers' League, organized at Kansas City on Jan. 6 and 7, 1920, practically covers the aims and the purposes of the National Beekeepers' Association; and
>
> Whereas, Under these conditions the two organizations will weaken each other by working apart, altho in a parallel way; and
>
> Whereas, the American Honey Producers' League by its name and purposes covers a greater scope; therefore be it
>
> Resolved: That the National Beekeepers' Association hereby merges itself into the American Honey Producers' League and authorizes its Board of Directors to wind up its affairs and cancel its charter.

This resolution was opposed only by Dr. E. F. Phillips, whose contention was that the League is premature and that its organization should be deferred until the amount of honey produced by American beekeepers is very largely increased. However, the resolution passed without a dissenting vote.

A committee from the New York State Beekeepers' Association were present for the purpose of learning more regarding the aims and purposes of the League. After thoroly informing themselves regarding these matters the committee decided that their association should affiliate itself with the League and applied to the secretary for membership. As it was decided that the National Association should merge itself with the League, no officers were elected and no further business was transacted.

B. F. Kindig.

As Reported by Orel L. Hershiser.

The National Beekeepers' Association, which convened at the Statler Hotel, Buffalo, N. Y., on March 9, for a three-day convention, was the occasion of a frank and exhaustive discussion of the newly organized American Honey Producers' League—particularly as to its aims, purposes, the activities it contemplates, and its legal aspects. It was made plain that no activities are contemplated that would be illegal and particularly that would be in contravention of the Sherman anti-trust law. Its advocates were so impressive that some who came to the convention in a doubting mood were finally won over to its support, and at the last there is no doubt but that a feeling of enthusiasm and optimism for the League was very prevalent.

The New York State Association of Beekeepers' Societies was represented at the convention by a committee of five, with power to act, viz: Chairman O. W. Bedell, S. D. House, C. B. Howard, A. Coggshall, and O. L. Hershiser. This committee was of popular selection and was appointed at the New York State convention in January last, after ascertaining the pleasure of the delegates by ballot. It was thought that the personnel of the committee fairly represented the interests and sentiments of the beekeepers of the State. It may be said that in the minds of the committee there was a feeling of doubt and a disposition to be extremely careful; but all approached the matter with open minds, laying all prejudice aside. All salient phases of the new organization were pointedly and frankly discussed in the committee room, and the result was a unanimous decision to join and support the League.

The keynote of the supporters of the League was that there must be an absolutely unselfish and brotherly spirit of co-operation, in which the greatest good for all would result in the greatest good for each individual. With that sentiment carried into effect and with cordial support backed by dollars, success seems to be assured. The accomplishment of these objects is what is expected of the League and with faith in that expectation we indicated our willingness to join it.

As to the old National Beekeepers' Association, the conviction was very apparent that it had outlived its usefulness. Personally I regretted to see it go, but no good reason could be advanced for its continuation. The committee on nominations for new officers for the Association was obliged to report that new officers could not be elected this year on account of constitutional limitations. It had lost all its support, and no one could doubt but that it was a thing of the past. As its name had been changed repeatedly there seemed no valid reason for not making the final change, and it was finally voted to merge the National Beekeepers' Association into the American Honey Producers' League. Orel L. Hershiser.

As Reported by R. F. Holtermann.

After having written pages of manuscript to cover the proceedings of the last National Convention and finding it one of the most difficult conventions I ever attempted to report, I decided that in the available space I could not do justice to all the speakers and therefore decided to give the general impression which the convention left upon those who attended.

For a National Convention the attendance was painfully small. Fifty to seventy-five was the outside number present, and man after man expressed disappointment at the attendance; but the proceedings were of a high order, and it was felt that the interest in the organization could not be measured by the number present.

Next, I believe those present were absolutely unanimously of the opinion that the National could not sell the United States honey crop in a co-operative way.

On the other hand they appeared to be just as confident that the Union could cooperate in directing the distribution of the honey crop, thus preventing congestion in one city or center and the neglect of markets in other directions. B. F. Kindig, president of the National, and E. G. LeStourgeon, president of the League, showed themselves able officers, and in their addresses set forth in a convincing way the feasibility of co-operation.

The best address given, setting forth the aims of the organization, was probably that of Mr. LeStourgeon. He stated that cooperation could be carried out along such lines as distribution, compelling express companies to make good damage done to goods, railway rates on honey and wax, ordering bee supplies, etc.

It was also pretty well settled that as the National was a legally incorporated body it could not extend its activities outside of the United States.

C. F. Muth pledged the support of their company as also did the G. B. Lewis Co. thru Kennith Hawkins. C. P. Dadant promised the support and sympathy of the American Bee Journal. A. L. Boyden of the A. I. Root Co. stated that their company and Gleanings in Bee Culture could be depended upon to give the help and publicity to the movement that they had always given.

Dr. E. F. Phillips of Washington stated that their department was not in a position to enter into this movement. The Department was not there for that purpose. He doubted if the minimum amount required, $10,000 per annum, could be raised to carry on the work. It is up to the beekeepers to prove or disprove the correctness of this estimate. R. F. Holtermann.

* * *

The 29th annual meeting of the Connecticut Beekeepers' Association will be held at room 72, fourth floor, State Capitol, Hartford, Conn., on Saturday, April 3, 1920, beginning at 10 a. m. One of the papers to be read will be "For the Small Apiary, Comb, Extracted Honey, or Both? How to Produce the Most of Each," by Arthur C. Miller of Providence, R. I. Geo. W. Schofield of Berlin and J. W. Barker of Waterbury will also read papers. L. Wayne Adams of 15 Warner Street, Hartford, Conn., is secretary.

* * *

A telegram from J. T. Calvert of The A. I. Root Co., dated at Los Angeles, March 22, gives the following very encouraging news as to the prospects for a good honey crop in California: "Heavy general rains this morning continuing tonight still further assure the honey crop this season from sage. Oranges already in bloom give promise of continuing longer than usual from present conditions. With continued favorable conditions this should be much better than last year and above the average for California."

* * *

E. R. Root recently attended two important conventions in the West. First, at Wichita, Kans., on Feb. 16. On account of the prevalence of influenza, the attendance was not quite as large as was expected, but about 75 beekeepers were present. Mr. Root was given the floor at each of the sessions. It developed that the whole Arkansas Valley is becoming very enthusiastic over the future of the bee business. The attendance at the Salt Lake convention was likewise less than expected, also on account of influenza, but as reported elsewhere the meeting may go down into history as the most important ever held in the Rocky Mountain districts. At one of the sessions it developed that the Ventura method of wiring as described on page 78, February Gleanings, originated in Utah. W. B. Parker of Emery and Thomas B. Chantry of Wellington have used this method for years. They confirmed all that Mr. Root said to the effect that the brood would go clear to the top-bars when the frames were properly wired, thus increasing the capacity of the hive.

OUR HOMES

A. I. ROOT

Lead us not into temptation.—Matt. 6:13.

Thou shalt love thy neighbor as thyself.—Matt. 19:19.

The love of money is the root of all evil.—1 Tim. 6:10.

FOR some time I have been wondering why people persist in carrying large sums of money around on their persons. Scarcely a daily paper comes out without some account of a hold-up; and in most cases it happens that the victim had been guilty of carrying money around in his pocket, when, so far as I can see, there was no need of it. I have been wondering why the editors of our various periodicals do not come out in open protest. The mayors of our cities, our police, and all public officers should come out in a loud protest against keeping money anywhere except in a bank. Concealing money somewhere in the home is so frequent, or has been so frequent, that when burglars get wind that a considerable sum is hidden somewhere they tear the house all to pieces in order to find the "hidden treasure." Not only the accumulated savings of men for years, but the hard earnings of women also are gone in just one night, and, what is of still greater import than money, there is sometimes the loss of life.

With this preface I give below an article which I furnished for our county paper:

RATS, ROBBERS, AND "THE ROOT OF ALL EVIL."

Editor Gazette:—It pains me until I can stand it no longer when I continually see mention made in the papers of people—mostly good hard-working people—who persist in carrying their money about in their pockets, say hundreds of dollars and sometimes even thousands. And then, worse still, they "lug it home" and keep it over night when there is no need of it at all. The banks all over the land are made to keep money and keep it safely; and yet our poor mistaken deluded men—yes, and women too—will keep their hard earnings, maybe the accumulations of years, hidden away somewhere in the home. Put your money in the bank and keep it in the bank; and when you want to pay somebody, let the money still stay in the bank and make out a simple check for it to give to the person you owe. Every bank will give you a little check book full of blank checks; and it is a very simple matter to pull out a check and sign your name to it.

In the last issue of the *Gazette* we are told of a hard-working farmer who, after selling his wheat crop, put the money in the bank all right; and then for some reason which I can not understand he took this money out of the bank and put it in his pocket. He was waylaid by four masked men who, by some means, knew he was going to take his money out of the bank, and laid their plans accordingly.

Just a few days ago I heard of another hard-working farmer who, it was said, took his money out of the bank to buy stock of the Root Co. But he took it home first to keep it over night and a part of it was stolen. Now, maybe this was just gossip, but it does not matter. It illustrates the point. The Root Co. does not want *money*. We very much prefer a check on the bank. If you bring us the money somebody has got to "lug" it up to the bank and thus incur another risk. Let me digress a little.

Two or three years ago a careful estimate showed that *rats* rob the people of the United States of one hundred million dollars annually; and our experiment stations and agricultural papers have been urging cement floors for all farm buildings, so there will be no place for the rats to locate under the floor of any building on the farm. Then they urge that all rubbish be removed, having no place left where a rat can skulk and hide. Give the rat terrier or the faithful household cat a good chance to win out in the chase, and pretty soon the rats will decide that the locality is unhealthy for rats and mice.

Some years ago I visited a nice farm home, just recently finished. The proprietor showed us all over the place with pride. He said something like this:

"Mr. Root, there is not a spot on the whole premises where a rat or mouse can hide."

Then he showed us the kitchen and pantry and washroom, and said, "Not only that, we have tried to fence off flies. We do not leave a particle of anything lying around loose for flies to live on. The result is, they are starved out. There are no flies around here."

Do you see the point, friends? We want to wind up "this carnival of crime" that is now cursing not only our State and nation, but out-of-the-way Medina. Do not carry any money around with you at all except just enough for personal needs. Pay by check.

As good and wise a man as E. R. Root some years ago went away from home and almost missed the train. It was about to start. He rushed into the ticket office, got his ticket, and ran for the train just starting. In his hurry he crammed his roll of bills into any pocket that was handiest, deciding he would straighten it out when he got on the train. Well, he never "straightened out" that money, because when he, half out of breath, put his hand in that same pocket, there was not any money there. One of the fellows who were probably watching around the ticket office for just such contingencies saved him the trouble of straightening it out.

When you are obliged to carry money put it in some inside pocket where the thief will have trouble in reaching it. When you expect to use some part of it for some particular purpose, sort out just the amount you need, and no more, and be ready to make change, and make it quickly.

Some one may suggest that the banks will break or be burglarized—yes, even in broad daylight, as has happened in the last few days so many times. My reply is that, may God be praised, banks do not break now as they did in times past or since national banks were organized. In regard to holdups in the day time as well as night, all up-to-date banks are *insured*, just as you have your house and barn insured; and you may be sure they are safe-guarded now in a way they never were before since the world began. Do not be afraid of your banks nor of your bankers. They are your personal friends, and would be still more so if you would stop carrying your money around in your pockets.

I was going to say something about baiting "rats and robbers" by lugging around diamonds, high-priced watches, etc.; but this paper is already long enough. Now, friends, shall we not join in a crusade to starve robbers as well as rats and mice? Keep away the temptation. Your old friend.

A. I. ROOT.

Later.—I have just come across the following from the *Plain Dealer* of Oct. 25th:

> BROTHER'S SAVINGS STOLEN.
>
> Mrs. Michalina Lewicka, 6919 Gertrude Avenue S. E., saved $950 for her brother, she told police, and had put the money under a clothes basket. In her absence, she said, the money was stolen.

If this were an isolated case, it would not matter; but, my good friends, if you will scan our daily papers you will find it is almost a daily occurence. This poor woman had probably labored for months and possibly for years to lay up $950, and then unwisely left it "under a clothes basket." Paul said, ages ago, "If meat maketh my brother to offend I will eat no meat while the world standeth." Now, if leaving money, the accumulations, perhaps, of a lifetime, around loose does not "make my brother to offend," what *does* it do?

ELECTRIC WINDMILL NO. 2 AT OUR FLORIDA HOME.

The new windmill had its first trial today, Jan. 15. I think, perhaps, I am the first to discover that wind, *at least sometimes,* blows quite briskly at one place, and 200 feet distant *doesn't* blow. This upsets my plan of making the two pull together, like a span of horses. Instead of charging the auto with *one* plug, in the rear, we must have a "charging plug," both front and rear, and have one mill charge the front and one the rear. Clipfell and Kaiser are both on the problem, and I don't know of two better and more capable men, for the job, in the whole wide world. When the auto is out on the road, the same thing must be done with the 16-cell stationary battery just received. Let each mill take half of the 16. Should it, in the future, be found advisable to have a "battery" of windmills, say a half-dozen in a string, this "erratic" habit of the wind will doubtless prove a good thing, for altogether they will give a much steadier current.

Feb. 11th.—We have all our batteries fully charged, and the two windmills are about out of a job. Owing to the difficulty of getting appliances of 32 volts (instead of 110), we are not yet doing the heating and cooking by wind power, but our home is lighted beautifully by 75-Watt nitrogen globes. A queer thing, to me at least, is the fact that one mill will almost stand still, while the other stores at a very fair rate; and the two very rarely have the same speed even when only *200 feet* apart. I believe the flying machines have hinted at this erratic habit of the wind. In one respect this is fortunate, for with a single mill the hand of the ammeter on the auto was always dodging up and down; with the two mills, the united current is very much steadier, and with, say, one-half dozen mills we might do many kinds of work without any battery at all, or with a comparatively small and inexpensive battery.

Later: What seemed yesterday "the impossible," has apparently been accomplished. The two windmills are now pulling together like a well-trained team of horses, and a single "charging plug" delivers the whole current to either the automobile batteries, or the stationary batteries. See below, clipped from the *Cleveland Plain Dealer*:

> WIND POWER.
>
> *Editor Plain Dealer*:—Sir: In view of a possible coal shortage in the next few years, I would suggest that people who have favorable locations where a powerful windmill could be erected, take advantage of the wind's force to drive many machines, electrical and otherwise, that are at present depending on power plants that are taxed to the limit. Modern ball and roller bearings, scientific bearings, light structural iron towers, and modern draughtmanship could evolve an efficient air turbine that connected to the dynamo, or by belt direct, could furnish light and heat for ironing, washing machines, saws for cordwood or steel bars, and numberless other devices that need power; and combined with present sources, as in case of wind velocity shortage, which has not manifested itself this year, the power could be switched to the present supply until the mill whirls again.
>
> Cleveland. EDWARD BROWN.

FLORIDA NEW POTATOES.

About the middle of February one of our Bradentown grocerymen came down to our place and said he wanted one-half bushel or more of nice, new potatoes, and that he would pay $5.00 per bushel for them. Altho they were not quite ready to dig I carried them up in the wind electric auto, and, as soon as people saw them, there was a big demand for more. The result is I have carried up town about two bushels ($10.00 worth) a day for the last 20 days, and the demand has been for *more* every trip I have made. The grocers retail them at 75c a ½-peck basket ($6.00 per bu.), and a good many are sold in quart baskets at 20c a basket. Why these great prices? Well, it is just because my potatoes are started in a bed of *very rich soil,* that can be protected from frost as I have described, winter after winter. These great, strong, thrifty plants, with bushy roots and some of the rich soil adhering, get the potatoes three or even four weeks ahead of any body else's. I asked this same grocer today if he knew of any one else in Manatee County who had new potatoes, and he said he did not. I have had exclusive control of the market in this same way winter after winter, and yet no one else seems to "catch on." Even our experiment stations seem to think it "too much fuss and bother," when I try to explain it to them. Now then, you good people up North! This will probably reach your eyes just at the proper time to start your potatoes in a hot bed or cold frame. Cut them to one eye or as near as you can, and make that one eye send out a good, strong, thrifty plant with roots and leaves by the time they can be set outdoors. When weeds start, the potatoes are so much ahead of them, they (the weeds) get "discouraged" and give up and there are *no missing hills.* I said a while ago, the way to make hens lay was to "love them." Well, that is exactly the way to make potatoes "astonish the natives." When I attempt to unload, the women folks on the walk crowd up and want to buy "those beautiful potatoes." I tell them they are all sold, and indeed such has been the case for the last three weeks, every single trip.

From a bed of four rows of potatoes 120 feet long, I received $25.00. As I deal with "cash and carry" grocers, I get my pay at every delivery. In this same bed I have grown potatoes year after year for nearly 10 years past. My crop is cleaner and handsomer this year than ever before. If you want further particulars as to how I do it, see your back journals of about a year ago. The two windmills, that supply the current for the beautiful Nitrogen lamp that enables me to do this writing, are *still* working together like a couple of brothers.

THE NEW ANNUAL WHITE SWEET CLOVER.

We take it for granted that our readers, at least most of them, read what has been told in GLEANINGS about this new legume. A thousand persons, more or less, have sent for our little trial package of seeds. After this send all applications for free samples, as above, to Medina, O., instead of here. Below is a sort of "summing up," which we clip from the *Ohio Farmer* of Mar. 6. With the article the *Farmer* gave a picture of plants "six feet high, 4½ months from planting."

VALUABLE NEW CLOVER.

From the Iowa Experiment Station comes the announcement of a variety of white sweet clover which develops in one year instead of two, as with the common kind. Plants of this new variety have been grown in all parts of the United States and in many foreign countries with almost uniform success. In some comparative plantings the new annual sweet clover grew to a height of 4½ feet, while the ordinary or biennial kind made a growth of 12 to 14 inches. When sown the same season, under as near identical conditions as possible, medium red clover made a growth of three to five inches while the annual white sweet clover grew to a height of three to 4½ feet. This is a wonderful growth of forage in so short a time. The new crop will soon find a place in restoring humus to worn lands. It furnishes a tremendous growth of valuable forage and is a great honey producer. The discovery and development of this annual variety of sweet clover is a creditable piece of constructive work by our experiment stations. While the variety was discovered at the Iowa station, it is thought to have originated in Alabama, from which State came some of the seed that was under observation at Ames. In the development and testing out of the new variety practically all of our experiment stations and many leading seedsmen have co-operated. At the Ohio Experiment Station the plants ranged from 15 to 60 inches in height, and ripened seed. In a few years the seed will be on the general seed market, but at this time it is available only in small quantities for testing and developing.

DEMANDS FOR SEED COME FROM AROUND THE WORLD.

Following the first trials made with this clover, unheard of prices were offered from Denmark, Australia, Canada, England, and the far islands of the sea. But no seed was for sale for general distribution. The Iowa station had determined to wait for another year's reports, for additional tests and for further increase of seed before making further dispersals.

The reports from another year's trials are all in now, and the Iowa station knows pretty definitely what this clover will do under a great variety of conditions. Its estimate of the probable future of the plant is not based on its own trials alone, but also on trials made by experiment stations, seed companies, and farmers in all parts of the country. Having this information the station is ready to give a few seeds to any farmer who will send a stamped addressed envelope to carry the seed to him. Address Iowa Experiment Station, Ames, Ia.

The Rural New Yorker for Mar. 13 contains two lengthy articles on this new acquisition to agriculture. The seed was first given to the general world thru Gleanings (see page 629, Oct. 1918). Will the friends who received the "little pinch" of seed take notice the seed is now worth more than its weight in gold.

Aside from the offer of a few seeds free from the Iowa Station, I know of but one place in the whole wide world where seed can be purchased. See page 110, February issue.

Special Notices by A. I. Root

HELPS FOR DEAF PEOPLE.

On page 744 of the November issue I gave my experience with electric hearing devices. Since then I have purchased a Port-O-Phone instrument made by The Port-O-Phone Corporation, 1919-1929 Broadway, New York City, and, while it is not all I could desire, it is so much better I have laid aside the two other instruments mentioned in the article referred to above.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

Dave Peck Seed Co., J. A. & B. Lincoln, A. A. Berry Seed Co., R. M. Kellogg Co., Jas. Vick's Sons, Storrs & Harrison, L. J. Farmer, Condon Bros., American Mutual Seed Co., Lewis Roesch, Rhodes Mfg. Co., D. Hill Nursery Co., Virgil Weaver, Sunnyside Apiaries, Hyde Bee Co., Stover Apiaries, C. F. Alexander, T. C. Asher, Fred Briggs, W. B. Crane, Wildflower Apiaries, A. R. Graham, Jacob Long, Jr., McAdams Seed Co., H. L. Murry, C. B. Peterson, A. J. Pinard, P. B. Ramer, W. M. Robb, E. S. Robinson, P. W. Sowinski, Otto J. Spahn, Unitile Co.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover extracted honey in 5-lb. pails. L. S. Griggs, 711 Avon St., Flint, Mich.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Four tons choice clover honey, extra well ripened, packed in new 60-lb. tins, two in a case. Wish to sell in one lot.
Lee & Wallin, Brooksville, Ky.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey, in 60-lb. cans, at 22½c per lb. f. o. b. Brooksville. Sample 25c.
W. B. Wallin, Brooksville, Ky.

FOR SALE.—We have a very choice lot of white clover honey at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—Finest quality extracted white-clover honey in 10-lb. pails for $2.70 each; also in 60-lb. cans, for $15.00 each.
Charles Sharp, Romulus, N. Y.

FOR SALE.—We have a small part of our crop of white clover-basswood extracted honey left, packed in new 60-lb. cans, two to the case. Write for prices. D. R. Townsend, Northstar, Mich.

FOR SALE.—10,000 lbs. very fine clover-alfalfa extracted honey in new 60-lb. cans, two in a case. Make me an offer for this lot, cash here.
Custer Battlefield Apiaries, Hardin, Mont.

FOR SALE.—24 cases buckwheat comb honey No. 1 quality, $6.00 per case; 12 cases mixed, not all capped, $4.00 per case, six cases to carrier; clear clover extracted, 25c per pound. Buckwheat and clover mixed, 20c; two 60-lb. cans to case.
H. G. Quirin, Bellevue, Ohio.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey, but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many—one can, $15.50; case of two cans, $30.00. If a larger quantity is needed, state how much you will need and we will quote you a special low price. Kindly address, with remittance,
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Small lots of off-grade honey for baking purposes.
C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax. E. B. Rosa, Monroe, Wisc.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address so we can identify it immediately upon arrival, and make prompt remittance.
The A. I. Root Co., Medina, Ohio.

FOR SALE

Root's Goods at Root's Prices.
A. W. Yates, 3 Chapman St., Hartford, Conn.

I manufacture Modern Cypress beehives. Write for prices. J. Tom White, Dublin, Ga.

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

A full line of Root's goods at catalog prices. Catalog on request. Will buy your beeswax, 40c cash, 42c trade. A. M. Moore, Zanesville, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

STILES BEE SUPPLY COMPANY, Stillwater, Okla. We carry a full line of Root's Bee Supplies. Beeswax wanted. Free catalog.

FOR SALE.—11-inch foundation mill, or will exchange for bee supplies.
G. A. Ohmert & Son, Dubuque, Iowa.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

How many queens have you lost introducing? Try the Safe way, push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

FOR SALE.—At reduced prices, to close out, beekeepers' supplies.
Anton G. Anderson, Holden, Mo.

FOR SALE. — 200 8-frame hives with newly drawn combs, wired, $2.75 each. Write
Fred Alger, Waukau, Wisc.

FOR SALE.—100 wood-bound zinc excluders for 10-frame hives. Almost new. 50 or more, 30c each. Less than 50, 35c each. Address
Edwin G. Baldwin, 42 Vine St., Ashtabula, Ohio.

FOR SALE.—Hatch wax press, 100 lbs. heavy foundation and 50 comb supers. All dirt cheap. Address
W. I. Lively, 932 West Polk St., Phoenix, Ariz.

FOR SALE.—150 cases (2 in case) second-hand 5-gallon honey cans at 50c per case f. o. b. Milwaukee. Laabs Brothers Co., 20th & Walnut Sts., Milwaukee, Wis.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition at 50c per case. Buy them now for next summer's honey crop.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—Weis fibre containers, size 6 oz., 15 oz., 24 oz., 3 lb., and 5 lb., nearly 500 of each kind. Will sell any quantity, or lot at $40.00. Also have 10 Root queen nuclei boxes.
J. G. Kilian, Ridgeway, N. C.

FOR SALE.—One foundation mill, 6½-in. roller. 30 eight-frame supers for 4¼-sections; 1000 thick top-bars Langstroth frames, in lots of 100 or more. 25 chaff hives.
M. E. Ballard, Roxbury, N. Y.

FOR SALE. — Four six-frame Root automatic hand extractors for Langstroth frame. All in perfect condition. Reason for selling—am using eight-frame power extractor.
C. J. Baldridge, Homestead Farm, Kendaia, N. Y.

FOR SALE.—65 10-frame supers, used one season, with drawn-out foundation free from disease, wired frames, at $3.50 each, f. o. b. Spring Park, Minn. Mail check to
Paul Knechtges ,1664 Laurel Ave., St. Paul, Minn.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10-frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

FOR SALE.—560 Hoffman frames, $22.40; 1 two-frame Cowan Extractor, $33; 2 Bingham uncapping-knives, $2.40; 1 Peterson capping-melter, $25.92;1 Woodman section foundation-fastener and lamp, $4.50; 94 lbs. medium brood fdn., 10 lbs. light brood, $67.60; 7 lbs. light section, $5.25; 100 12-section crates, $15.00. These goods new, or practically new. For the lot, 25 per cent off above price United States money, at East Aurora, N. Y.
R. F. Holtermann, Brantford, Ont., Canada.

"Stanley's" queen-rearing nursery twin-mating boxes, cell cups and protectors. Cheapest and most adaptable. Write for information and prices. We can take a few more pupils in our queen-rearing course. A. Stanley & E. C. Bird, 2008 Pearl St., Boulder, Colo.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

REAL ESTATE

FOR SALE.—Twenty-acre farm, 200 colonies of bees, one acre ginseng and golden seal. Good soil, buildings, bee equipment and location.
L. Francisco, Dancy, Wisc.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. $1.50 per year. 15 cents per copy. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

WANTS AND EXCHANGE

WANTED.—200 or less colonies of bees (any style hive) for spring delivery.
A. W. Smith, Birmingham, Mich.

WANTED.—A second-hand 2- or 4-frame reversible extractor; also steam uncapping knife.
Maggie Stripling, Altamaha, Ga.

WANTED.—To purchase Hershiser wax press. Give price and condition.
O. W. Bedell, Earlville, N. Y.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—To buy 300 colonies of bees, equipped for extracted-honey production.
L. S. Griggs, 711 Avon St., Flint, Mich.

WANTED.—To exchange Black Giants, American Checkered, or New Zealand Rabbits, for cash or bee supplies. Joy Rabbitry, Joy, Ills.

WANTED.—Five or six colonies of bees, about May 1. Must be strong.
F. M. Feasler, R. D. No. 2, Erie, Pa.

WANTED.—50 to 75 swarms of bees for standard ten-frame hives on Hoffman frames, free from disease, within radius of 100 miles of Preston, Minn. State price. Romen Grebin, Preston, Minn.

WANTED.—30 or less colonies of bees in or around Chicago. Also honey extractor. Write soon. Tim O'Donnell, Jr., 1147 So. Springfield Ave., Chicago, Ills.

WANTED.—To exchange a new 32 Winchester Special Rifle with 49 cartridges for a Barnes combined saw.
Dwight G. Cook, Chateaugay, R. D. No. 2, N. Y.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you.
Dadant & Sons, Hamilton, Illinois.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list.
Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens. No bees.
W. G. Lauver, Middletown, Pa.

QUEENS ON APPROVAL.—Bees by package or colony.
A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—1920 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

QUEENS ON APPROVAL.—Bees by package or colony.
Birdie M. Hartle, Reynoldsville, Pa.

FOR SALE.—Near Cincinnati, Ohio, 90 colonies of bees, extracted outfit. A. Carder, Ludlow, Ky.

FOR SALE.—Two-pound packages of bees with Italian queen. Allenville Apiaries, Allenville, Ala.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps and Son, Binghamton, N. Y.

FOR SALE.—50 colonies of bees in 10-frame hives, good condition, no disease, $11.00 per colony.
J. H. Stoneman, Blackfoot, Idaho.

FOR SALE.—Golden and three-banded queens untested, April, May, and June delivery, $1.25 each; $12.50 per doz. Satisfaction.
R. O. Cox, Greenville, R. D. No. 4, Ala.

FOR SALE.—Queens, nuclei, packages, colonies from our apiaries in Arkansas and Louisiana. Write for prices now.
The Foster Honey & Merc. Co., Boulder, Colo.

We will ship 2-lb. packages and full colonies only this season. Three-banded Italian queens any quantity. Send for prices. J. A. Jones & Son, R. D. No. 1, Box No. 11-A, Montgomery, Ala.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

BEES BY THE POUND.—Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

Bees by the pound a specialty; 2000 lbs. for May delivery, 1920; 200 Italian queens for sale with above bees. Write for prices.
A. O. Jones & H. Stevenson, Akers, La.

GOLDENS THAT ARE TRUE TO NAME. 1 select untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.
Garden City Apiaries, San Jose, Calif.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Italian queens, the kind that are sure to please you. Untested, in April, $1.25 each; one untested, May 1 to July 1, $1.00; one tested, May 1 to July 1, $1.50. Discount on large orders. Safe arrival guaranteed. L. R. Dockery, Carrizo Springs, Texas.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Bright Italian queens, $1.50 each; $14.00 per doz. Ready after April 15.
T. J. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—90 colonies bees with equipment. Fine condition. Fine location. Will rent property and half-acre lot. Supply trade.
O. Holdren, Darlington, Mo.

FOR SALE.—We can ship 2-lb. packages of bees with queens from our honey yards after May 10. Stock Italian and Hybrid. Price, $5.00.
Sarasota Bee Co., Sarasota, Fla.

FOR SALE.—Bees, 2-lb. packages, $4.50; untested queens (Gleanings Code), $1.50. No foul brood known within 100 miles.
S. T. Crawford, R. D. No. 1, Glendale, Ariz.

FOR SALE.—Italian Bees and Queens (the kind that fill from 2 to 4 supers) full colonies, $12.00 and $15.00 each. Queens, after May 1, $2.00 each, 6 for $11.00. Miss Lulu Goodwin, Mankato, Minn.

FOR SALE.—Pure Italian queens, packages and nuclei. One untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.
Golden Star Apiaries, San Jose, Calif.

FOR SALE.—20 colonies in 8-fr. hives tested Italian queens, good worker combs, Hoffman frames, inspection certificate if desired, $20.00 each. May delivery. Richard D. Barclay, Riverton, N. J.

FOR SALE.—Golden queens. Will begin filling orders May 15 in rotation. Untested, $1.10; selected untested, $1.50 each. Safe arrival.
Hazel V. Bonkemeyer, Randleman, N. C.

ITALIAN QUEENS OF WINDMERE will be ready in May. Untested, $1.25 each; six for $7.00. Tested, $2.00 each. Select tested, $2.50 each. Now booking orders. Prof. W. A. Matheny, Ohio University, Athens, Ohio.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, $2.00; six, $8.00; doz., $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—$6.00 for four-frame nuclei of hybrid bees without queens in May and June; a few strong box-hive colonies $8.00, with queens. Your money's worth every time. A good chance for a young beeman.
B. F. Averill, Howardsville, Va.

FOR SALE.—Not having a good place to keep them I wish to sell the following: Gleanings from 1906 to 1919, complete; American Bee Journal from 1910 to 1919, complete. All in first-class No. 1 condition. Will sell for best reasonable offer f. o. b. A. A. Augenstein, Dakota, R. D. No. 2, Ills.

BUSINESS-FIRST QUEENS.—Untested, $1.00 each; $11.00 per doz.; select untested, $1.50 each; $12.00 per doz.; tested, $2.00 each; select tested, $2.50 each; breeding queens, $5.00 and $10.00 each. Safe arrival guaranteed in the United States.
M. F. Perry, Bradentown, Fla.

FOR SALE.—Golden Italian queens, untested, $1.15; 6 for $6.50; 12 or more, $1.00 each; tested, $2.00 each; select tested, $3.00 each; extra select tested, $4.00 each. No bees for sale. Have all the orders now for untested I can fill by the 10th or 15th of June.
D. T. Gaster, R. D. No. 2, Randleman, N. C.

MOTT'S NORTHERN BRED ITALIAN QUEENS.—I have breeding mothers placed in the South for April and early May queens. Plans "How to Introduce Queens and Increase," 25c. If you want beauty with the best of summer and winter laying birds, try a setting of my Golden Campines. E. E. Mott, Glenwood, Mich.

FOR SALE.—Italian queens three-banded and Goldens. High grade, carefully bred from best select stock. Price each, $1.25; 6, $6.50; 12, $13.00; extra select, $2.00. Orders booked now. Satisfaction guaranteed.
G. H. Merrill, Pickens, S. C., (Formerly Liberty.)

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.50 for 10; $1.10 each when 25 or more are ordered. Allen Latham, Norwichton, Conn.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

We have enlarged our queen yard considerably. We can take care of orders better than ever, large or small. April 15 to June 1, untested queens, $1.25; tested, $2.50; untested, $115.00 per 100. After June 1, $1.00 each or $90.00 per 100. J. A. Jones & Son, Montgomery, R. D. No. 1, Box 11a, Ala.

THE BEES THAT PLEASE. Three-banded leather-colored Italians, hustlers, none better, 2-lb. packages only. Untested queens, $1.25; 2-lb. packages, $4.75. Ready to ship about April 15. 25 per cent in advance, balance to be paid before bees are shipped. Write for circular.
J. M. Cutts, R. F. D. No. 1, Montgomery, Ala.

FOR SALE.—Italian queens from some of the best stock in the U. S., mailed as soon as hatched. Safe arrival guaranteed to any part of the U. S. and Canada. All queens mailed in improved safety introducing cages. Order early. Send for circular. Prices, April to October, 1, 75c; 10, $6.00; 50, $27.50. James McKee, Riverside, Calif.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

QUEENS.—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, $2.00; six, $9.00; twelve, $16.80. After June 1, one, $1.50; six, $8.00; twelve, $14.00. Select tested, $3.00 each. Write for prices per hundred. Descriptive circular free.
Hardin S. Foster, Dept. G, Columbia, Tenn.

1920 prices on nuclei and queens. Miller strain. Queens, untested, $1.50 each; $15.00 per doz.; tested $2.00 each, $22.00 per doz. One-frame nucleus, $3.00; two-frame, $5.00; three-frame, $6.50, without queens, f. o. b. Macon, Miss. We have never had any bee or brood disease here. Will have no queens except for nuclei until June 1. Safe arrival and satisfaction guaranteed.
Geo. A. Hummer & Sons, Prairie Point, Miss.

ITALIAN QUEENS.—The Old Reliable three-banded Italians, the best all-around bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, $1.50; 6, $8.00; 12, $15.00. Tested, $2.25; 6, $12.00; 12, $22.00. Select tested, $3.00 each. Descriptive circular and price list free.
John G. Miller, 723 C St., Corpus Christi, Texas.

FOR SALE.—Highest Grade Three-banded Italian queens, ready June 1. Queen and drone mothers are selected from stock of proven worth in hardiness, gentleness, honey production and disease-resisting qualities. Untested, each, $1.25; 6, $6.50; 12, $12.00; 50, $47.50; 100, $90. Your correspondence will receive prompt attention and I guarantee satisfaction.
A. E. Crandall, Berlin, Conn.

FOR SALE.—Four colonies of bees with full equipment. R. I. Barney, 4653 N. Hermitage Ave., Chicago, Ills.

MISCELLANEOUS

FOR SALE.—Silver Spangled Hamburg Eggs and Cockerels. Elias Fox, Union Center, Wis.

Annual White Sweet Clover seed, trial packets at $1.00 per packet, postpaid.
Henry Field Seed Co., Shenandoah, Iowa.

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Early cabbage and tomato plants, 50c per 100, postpaid.
J. F. Michael, Winchester, Ind.

FOR SALE.—Scotch Collie puppies, pedigreed, from trained parents.
St. Vincent Collie Kennels, St. Vincent, Minn.

FOR SALE.—Yellow Biennial Sweet Clover Seed, hulled at 30c a pound; unhulled, 18c a pound. This is the big yellow and makes great bee pasture. Seed sent on money-back guarantee, if not satisfactory. F. Rasmussen, Grower of Sweet Clover, Rockville, Nebr.

HELP WANTED

WANTED.—Young man wishing to learn beekeeping, up-to-date methods. State age and habits.
Chas. Schilke, Matawan, R. D. No. 2, N. J.

WANTED.—A competent beekeeper to work bees in southern New Mexico. Must be thoro and fast worker. Mesilla Valley Honey Co., Canutillo, Tex.

WANTED.—Experienced man for comb honey. Give age, experience, and salary expected.
B. F. Smith, Jr., Fromberg, Mont.

WANTED. — A good queen-breeder, begin at once. An opportunity to learn the package business and a good position for the right man. State age, amount of experience, and salary wanted in first letter. W. D. Achord, Fitzpatrick, Ala.

WANTED.—A young man of good character, 27 years of age, desires to work in an apiary to learn more in bee culture. References if desired.
H. Stanley Cole, Jr., Worthington, Mass.

WANTED.—We can use an experienced man in extracted-honey production during the season of 1920. Applicant kindly state age, experience, and wages expected in first letter, and oblige
E. D. Townsend & Sons, Northstar, Mich.

WANTED.—Man, season of 1920, to work with bees. State age, experience, and wages. Give reference. Permanent employment to right man. The Rocky Mountain Bee Co., Box No. 1369, Billings, Mont.

WANTED.—One experienced beeman and one helper. Must be young man, able-bodied, and with good character. Prefer one man that can handle auto truck. State salary and give references when answering. Ernest W. Fox, Fruitdale, So. Dak.

WANTED.—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted. W. A. Latshaw Co., Clarion, Mich.

WANTED.—Two young men as students for coming season. Have twelve apiaries, giving extensive experience. Must be of clean habits. Give age, height, weight, condition of health, and if brought up in town or country. For terms, apply
R. F. Holtermann, Brantford, Ont., Can.

WANTED. — Queen-breeder, season of 1920. State age, experience, wages, and references.
F. Coombs & Sons, Brattleboro, Vt.

WANTED.—May 15 for four months, man with some experience to work in 400-colony extracted-honey apiary. State age, experience, and wages in first letter. R. V. Cox, Sloansville, N. Y.

WANTED.—One experienced man and students, as helpers with our 1,000 colonies. Best opportunity to learn the business from A to Z, in the actual production of carloads of honey. Theory also. Write immediately, giving age, height, weight, habits, former employment, experience, references, wages, photo, all in first letter. E. F. Atwater (former Special Field Agent in Beekeeping, U. S. Dept. Agr. for Calif., Ariz., and New Mexico), Meridian, Idaho.

100 EVERBEARING STRAWBERRIES Plants $2.00 POST PAID

200 for $3.85, 300 for $5.50. Americus, Progressive, Superb, Francis, Peerless,—some of each while in supply. When sold out of one or more we will send the others. Catalog Free.

C. N. FLANSBURGH & SON, Jackson, Mich.

HYBRID POTATO SEED

Every seed will produce a new VARIETY of potato, some white and some red, some early and some late, no two alike, 100 or more seeds in each package. One package and three months' subscription to our Magazine, "Special Crops," regular price $1.00; special price three months and seeds, 25 cents.

PUBLISHER OF SPECIAL CROPS, SKANEATELES, N. Y.

QUEENS and PACKAGE BEES

We advise our prospective customers to place their orders as soon as they can determine their needs, and thus avoid being disappointed in getting queens or bees when desired. By our improved methods of shipping, you will be assured of receiving queens and bees in first-class condition.

Every Queen we send out is reared by me personally, and I assure you that they will be the product of my very best efforts. If any queen should fail to measure up to the standard of a first-class queen, she will be replaced free of charge at your request.

HEALTH CERTIFICATE

"The State Inspector has this day examined the bees belonging to Jay Smith and found no evidence of any bee disease."—Ross B. Scott, Deputy Inspector. Date, May 28, 1919.

OPINIONS OF OTHERS.

"If I were asked who has the best Italian queens I would say, 'Jay Smith.' In 1918 I had several colonies that produced 300 pounds of extracted honey each. They were headed with queens that I raised from a queen I got from you in 1916."—F. R. Smythe, Amelia, Ohio.

"The strongest colony of bees I have seen this year was headed by a Jay Smith queen." —D. W. Erbaugh, Onward, Indiana, former Inspector of Indiana.

"Queens received. If their bees are as good as the queens, they will be 'Hum Dingers.' "—A. P. Berryman, McHenry, Ky.

"Thank you very much for the excellent quality of queens you sent and the fine treatment you have given me."—Dr. L. E. Moore, Gary, Indiana.

"The queen you sent me is such a beauty that I can hardly get her off my mind."—F. J. Rettig, Wabash, Indiana.

"The bees I got from you are the finest I ever saw and they don't try to sting."—Jacob Williamson, Riverton, Illinois.

"The queen I got of you last year was the only one in my yard that gave a surplus."—Albert Haas, Louisville, Kentucky.

"The queen I got from you is sure some worker. Her bees have made about three times as much honey as the rest I have."—Henry Fromberg, Crandell, South Dakota.

"The queen I received from you last fall proved to my entire satisfaction. She is a great layer and true to color."—Roy A. Cann, Munfordville, Kentucky.

Price List. *Select Untested Queens*

May 15 to July 1.	
One to four inclusive, each	$2.50
Five to nine inclusive, each	2.45
Ten or more, each	2.40
July 1 to November 1.	
One to four inclusive, each	2.00
Five to nine inclusive, each	1.95
Ten or more, each	1.90

Bees by the Pound. *After May 15*

One Pound	$4.00
Two Pounds	7.00

In lots of ten or more packages 5% discount.

Write for our booklet and complete price list.

JAY SMITH - ROUTE 3 - VINCENNES, INDIANA

Early-order Discounts will
Pay You to Buy Bee Supplies Now

Thirty-two years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri.

SOUTHERN HEADQUARTERS
THE OLD RELIABLE BREEDERS OF THREE-BANDED
ITALIAN BEES AND QUEENS

PRICES UNTIL JUNE 15

Untested queens, $1.25 each; 12, $13.25; 50 or more, $1.00 each
Select untested queens, $1.50 each; 12, $16.00; 50 or more, $1.25 each
Tested queens, $2.00 each; 12, $23.00
Select tested queens, $2.50 each; 12, $27.00
Very best breeding queen, $5.00

Prompt service, safe arrival and satisfaction guaranteed. If any of our untested queens prove to be mismated we will replace free of charge. No foul brood or other contagious bee disease has ever been in our vicinity.

Please let us have your orders now for June delivery.

W. D. ACHORD, FITZPATRICK, ALA.

WHEN YOU THINK OF BEEKEEPERS' SUPPLIES
THINK OF INDIANAPOLIS

We carry a complete line of Root's goods and we solicit your trade. Our slogan: Courteous treatment and prompt service. Catalog for the asking.

THE A. I. ROOT COMPANY (Indianapolis Branch) **873 MASS. AVE.**

AM NOW BOOKING ORDERS FOR
MICHIGAN-BRED QUEENS
THREE-BANDED ITALIANS ONLY
TESTED DISEASE-RESISTERS

PRICES	June 15 to July 15			July 15 to Oct. 1			
	1	6	12	1	6	12	100
Untested	$1.50	$8.00	$15.00	$1.30	$7.50	$13.50	$110.00
Select Untested	1.75	9.00	16.00	1.60	8.00	14.00	115.00
Select Tested any time after June 20				3.00	16.00	29.00	
Select Day-old Virgins after June 1				.60	3.50	6.50	50.00

All queens hatched in nursery cages, and any inferior ones are killed. All queens mated in two-frame or three-frame nuclei. No baby nuclei in yard. Books opened April 1. If you are going to need *good* queens this summer, now is the time to order them.

D. A. DAVIS 216 GREENWOOD **BIRMINGHAM, MICH.**

DONT SEND A PENNY

Here are four remarkable shoe values at a saving so great that we willingly send your selection—**no money in advance!** You cannot go wrong with these splendid bargains, as we take **all** the risk of pleasing you. Style, Quality, Fit and Comfort are positively guaranteed by us. Just pick out the pair you want. **Send no money**—just your name, address and size—and we will at once send you the shoes for examination, try-on and comparison with other makes and prices. If you are not perfectly satisfied, with high quality, style, workmanship and fit of these shoes, return them to us, and you will not be out a penny.

Wears Like Iron This Work Shoe is the utmost in quality, style, fit and comfort at an almost unbelievable low bargain price. For built-in, wear-resisting qualities we challenge comparison with any work shoe costing half again as much. Heavy weight chrome tanned veal leather, brimful of comfort, yet made to wear and resist action of acids in soil, milk, manure, etc. Lace Blucher style, broad roomy toe, durable solid leather soles, sewed and nailed. Dirt excluding half bellows tongue. **Dont send a penny now!** Pay only **$3.98** for shoes on arrival. If not fully convinced of the remarkable value return shoes to us; we will refund your money.

Sizes, 6 to 11. Wide widths. Order by No. A1817. Do it now! Be sure to state size wanted.

Order At Our Risk

Stylish Dress Shoe You must see these elegant dress shoes to realize the unusual value. They give wonderful wear and are extremely stylish and dressy, too. Made of specially selected fine quality gun metal leather on popular Manhattan toe last. Blucher style. Solid oak leather soles. Reinforced shank on cap; military heel. Best workmanship. You wont pay $8.00 or $10.00 for shoes when you can have these at this remarkably low price. Only a limited quantity at this price, so to avoid disappointment it is best to send in your order at once. A bargain like this soon clears out a large stock.

Your Name and Address Only

Send no money—only your name, address and size. Pay our low bargain price, **$4.69,** for shoes on arrival. If not a stunning bargain and satisfactory in every way, return them and get your money back. You have nothing to lose—everything to gain—so send your order today. Sizes, 6 to 11—state size and width when ordering. **Order by No. A15105.**

Four Wonderful Shoe Bargains

Extra-Fine Quality Black Kid Finished Hi-Cut Boots

Here is a very attractive and unusual offer typical of the wonderful shoe values put out by the great Mail Order House of Leonard-Morton & Co. Fashionable Hi-Cut Boots, lace style, of fine quality soft black kid finished leather on the very latest French last and with the new popular 1¼-inch walking heel. Light weight flexible leather soles. Just the sort of footwear a woman possesses with a feeling of pride. The kind that adds to a reputation as a stylish dresser. You can only appreciate the high degree of service and the quiet elegance which are combined in this shoe by seeing them on your feet. Wide widths. Sizes, 2½ to 8. **Order by No. A1080. Price only $3.98, payable on arrival of shoes.** If not the greatest bargain you ever saw, return to us and we will promptly refund your money.

Women's High Grade Black and Brown Low Heel Oxford

Just the smart Spring and Summer style to give your appearance that final touch of well-dressed elegance; and at a price so low that you should lay in not only one pair, but several pairs in order to benefit fully by the remarkable saving. In these oxfords is to be found a combination of smart style and satisfactory service usually found only in shoes at much higher prices. Extra fine quality dark brown or black, soft, glove fitting, kid finished leather. Light weight flexible leather sole and stylish new 1¼-inch walking heel. Send for these shoes at once. Their look, feel and wear will more than satisfy you. Wide widths. Sizes, 2½ to 8. **Order Black by No. A158. Order Brown by No. A159. Pay only $3.98 for shoes on arrival.** Examine critically. Try them on. Test their fit and comfort. Compare our low price with others, and if you are not more than delighted with your bargain, return shoes to us and we will cheerfully refund your money. When you send in your order do not fail to mention the size and width of your shoe.

Send Your Order Now!

Dont pass these splendid shoe bargains, which will be sent entirely at our risk without a penny in advance. Right now is your opportunity to strike a blow at the high cost of shoes and make a substantial saving in latest styles and guaranteed quality. Just send your name, address and size and the number of the shoes wanted. Examine them on arrival. Try them on. Look at their stylish appearance. Compare them with shoes selling for much more money. Then decide. If they are not all that you expect, return them to us and we will refund your money.

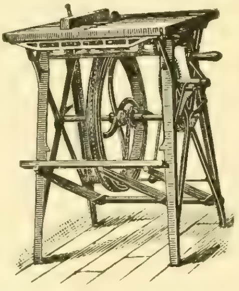
Leonard-Morton & Co., Dept. 4705 Chicago, Ill.

FOR SALE--THREE-BAND ITALIAN QUEENS

From best honey-gathering strain obtainable. (No disease.) Untested queens, $1.25 each; 6, $6.50; 12, $12. Select untested, $1.50 each; 6, $9; 12, $18. Tested, $2.50 each. Safe arrival and satisfaction guaranteed. Your orders filled promptly.

W. T. PERDUE & SONS Rt. 1, Fort Deposit, Ala.

BARNES' Hand and Foot Power Machinery



This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

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HONEY-MAKING, MONEY-MAKING

ITALIAN QUEENS

Untested - - $1.50 each; 25 or more, $1.35
Tested - - - 2.50 each; 25 or more, 2.25
Select tested, each - - - - - - 3.00

First ready for mailing April 15. Also furnish nuclei and limited amount bees. Circular free.

R.V. STEARNS, BRADY, TEX.

NEWMAN'S ITALIAN QUEENS

Bred from the best. No disease. Satisfaction and safe arrival guaranteed. Untested, $1.25; 6, $7.00; 12, $13.50. Select Untested, $1.75; 6, $9.00; 12, $17.00. Circular free.

A. H. NEWMAN, - - MORGAN, KY.

BEAUTIFUL IRIS

Splendid Collection of Best Varieties. Gorgeous Colors. All postpaid at Price Named.

	Each	Doz.
MME. CHEREAU, white, blue fringed	25c	$2.50
LENOLDAS, dark blue	25c	2.50
SANS SOUEL, yellow, petals wine	20c	2.00
GRACCUS, yellow, petals light wine	20c	2.00
OSSIAN, canary yellow, petals light purple	20c	2.00
SIBERIAN, blue	25c	2.50
FLORENTINE, purple	20c	2.00
CELESTE, sky blue	25c	2.50
FLAVESCENS, lemon yellow	20c	2.00
GOLD COIN, yellow, petals purple	20c	2.00

Collection one plant each variety postpaid $2.00.

W. N. Scarff & Sons New Carlisle, Ohio

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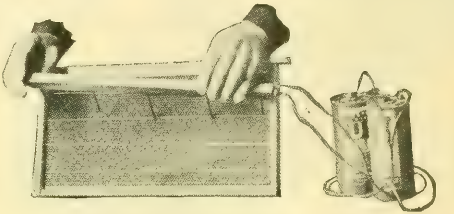

Price without Batteries, $1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers **Hamilton, Ills.**

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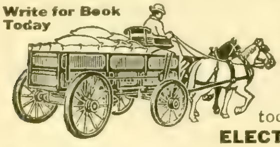

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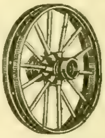
High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.



ELECTRIC WHEEL CO., 23 Elm Street, Quincy, Ill.

1920 QUEENS 1920

A colony of bees with a poor queen is worth the hive and fixtures. A colony of bees with a good queen has no limit in value, the honey flow alone being the determining factor. I am using my thirty-five years of beekeeping and queen-rearing experience to produce the best that can be produced, and sell at a figure that will sustain the high quality of my queens.

PRICES

One, $2; three, $5.50; six, $10; twelve, $19. All amounts over one dozen, $1.50 each. I sell only untested queens and make a specialty of this line. I select no queens, but try to have them all so good that there is little chance for selection. 1920 circular now ready. Season opens April first.

P. C. CHADWICK KERN COUNTY DELANO, CALIF.

BEE SUPPLIES IN DIXIE

Dependable Goods with prompt service. Save time and transportation costs.

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The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Florida Queens and Bees

I will be fully ready to begin shipping bees and queens by April the 1st from my very best Italian stock at these prices: Two-frame nucleus with untested queen, $6.00. Untested queens, $1.50; tested, $2.00.

Beekeepers' Supplies

I have a large and complete stock and prices are right. Get prices of my Cypress hives and hive parts, made of good soft Southern Cypress.

Dixie Beekeeper

This monthly publication deals with beekeeping and Dixie for beekeeping.

A sample copy free

J. J. Wilder, Waycross, Ga.

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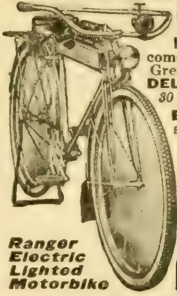

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Buy direct and save $10 to $20 on a bicycle. **RANGER BICYCLES** now come in 44 styles, colors and sizes. Greatly improved; prices reduced. **WE DELIVER FREE** to you *on approval* and *30 days trial*, actual riding test.

EASY PAYMENTS if desired, at a small advance over our Special Factory-to-Rider cash prices.

TIRES, lamps, wheels, parts and supplies at *half usual prices.*

Do not buy a bicycle, tires, or sundries until you get our big free **Ranger** catalog, low prices and liberal terms. A postal brings every thing.

MEAD CYCLE COMPANY
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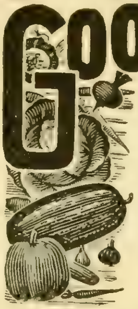
GOOD SEEDS



GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Ill.

Cheap Power NOVELTY Auto-Pulley Quick Power

DO ALL YOUR POWER WORK TEN DAYS FREE

Novelty Belt Power Attachment Makes Your Car a 10 to 15 Horse Portable Farm Engine

Grind Your Feed
Run Grain Elevator
Pump Your Water
Run Wood Saw

Simple, practical, economical. Attach in 3 minutes. Nothing to get out of order—cannot injure car or cause tire wear. Easy to operate—will last a lifetime—worth several times its price in emergencies.

SEND NO MONEY

Agents Wanted

We will send pulley to fit your car. Use it 10 days—put it to every test. After trial if you are entirely satisfied, send us $6.50; otherwise return at our expense. Hundreds of users—no red tape. Simply send us name of car or send for free circulars.

We can supply special pulley to change your present hand machines into power machines.

Novelty Mfg. Co., Dept. Z **Abingdon, Ill.**

BANKING BY MAIL AT 4%

THERE is no red tape or difficulty of any kind connected with our system of Banking by Mail at 4 per cent compound interest.

Write today for booklet and full information concerning this Safe, Convenient and Profitable plan.

THE SAVINGS DEPOSIT BANK Co.

A. T. SPITZER, Pres.
E. R. ROOT, Vice Pres. E. B. SPITZER, Cash.

MEDINA, OHIO

Dr. J. H. Black, Ft. Deposit, Ala.

Breeder of

Three-band Italian Queens

These queens are as good as can be had. They must be purely mated. Safe arrival guaranteed in United States and Canada.

Untested queens - - - $1.25; 12, $12.00
Select untested queens 1.50; 12, 15.00

Dr. J. H. Black, Ft. Deposit, Ala.

Bee Supplies

FALCON LINE
BEST GOODS MADE

Get our big discount sheet before buying

C. C. Clemons Bee Supply Co
132 Grand Ave. Kansas City, Mo.

AT SIOUX CITY, IOWA

YOU HAVE A MARKET FOR YOUR HONEY AND BEESWAX

WESTERN HONEY PRODUCERS
SIOUX CITY, IOWA Address Dept. C

When you have honey for sale send sample and state the price you want delivered here.

You have a stock of Lewis Beeware at your command.

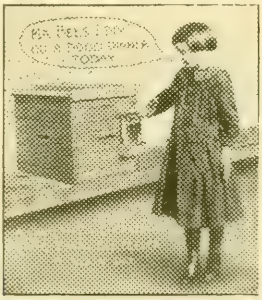
Send list of your wants and lowest prices will be quoted at once.

BEEKEEPERS' SUPPLIES

QUALITY AND SERVICE

Now is the time to order your season's supply of Bee Material so as to have them ready for the honey flow. For lack of hives and other goods, you cannot afford to let your bees fly away. *Bees are valuable.* We have every thing required for practical beekeeping. Our goods for Ideal of quality, quality of workmanship. Our 1920 catalog is now ready to send out; send for one. It is full of good stuff.

AUGUST LOTZ COMPANY -:- BOYD, WISCONSIN



THE E-Z-WAY BEE-FEEDER

will save your time and save your bees, and will satisfy an old established need

A few pounds of sugar syrup will save your weak colonies, they will be worth many dollars to you next season, don't lose one. when it is so E-Z to feed and save them with the E-Z-WAY BEE FEEDER. We send attachments for 3 hives, instructions for using, Feeding, and making the syrup with each feeder The spring will soon be here; don't delay, order at once, at our risk, 30 days' trial, money back if not satisfied. Price $1, or six for $5, postpaid. Remit by Money Order, Cash, or Stamps, to

THE HOLDEN MANUFACTURING COMPANY
CLARKSBURG, W. VA.

Established 1885

ALWAYS ON TOP

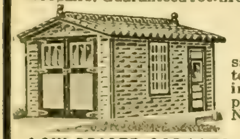
Write us for catalog.

BEEKEEPERS' SUPPLIES

The Kind You Want and The Kind That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co's brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.



World's Best Roofing at Factory Prices

"**Reo**" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 483

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.,
[illegible] Pike St., Cincinnati, O.

FREE Samples & Roofing Book

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service

BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway,

If you have not received 1920 catalog send name at once.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping-boxes, and three-frame nucleus colonies.

I. J. STRINGHAM, GLEN COVE, Nassau Co., N. Y.

TREES and SHRUBS

Of Highest Quality at living prices. Pleasing, prompt service. No money with order. We pay the freight and guarantee satisfaction. If interested, ask for 1920 Catalog. It explains.

THE PROGRESS NURSERIES
1306 Peters Avenue TROY, OHIO

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England: If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

"Falcon"

I am a "Falcon" bee

I live in a "Falcon" hive.

I am gentle and contented. I love to work in my home because everything is just as I like it.

The hive body is well constructed; that is why your honey crop is always plentiful.

Our queen is a "Falcon" queen—she is a three-banded Italian of pure healthy stock.

We all agree that our colony is successful, but so are all the "Falcon" hives in our apiary.

The other bees tell me when we meet in the fields.

Send at once for a "Falcon" queen, a hive, or any bee-supplies you need. Don't delay. Spring will soon be here.

"Falcon" bees and supplies always give the best results.

I know, because—I am a "Falcon" bee.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

"where the best beehives come from."

QUEENS

FINE ITALIAN QUEENS FROM

SELECTED
BRED-UP
STOCK

Pure mating, safe arrival, and satisfaction guaranteed. Now booking orders for June delivery at following prices:

	1	12	100
Untested - - -	$1.35	$15.00	$110.00
Select Untested	1.75	18.00	150.00
Tested - - - - -	2.50	24.00	200.00

A few more
PACKAGE BEES
for late May and early
June delivery,

E. A. HARRIS, ALBANY, ALA.

QUEENS

FROM SELECT BREEDING

Twenty Years of Experimenting. We have nothing but the very best.

3-Band Only

Price Cash With Order
Before July 1st

Untested - - - - - -	$2.00
Selected - - - - - -	2.25
Tested - - - - - -	3.00
Selected - - - - - -	3.50

Orders filled in rotation.
Write for prices in large
qnantities,

Did you get what you were looking for when you bought your last year's Queens? If not, try one that will please you. My queens are reared on a new system, large and prolific, surpassed by none but superior to many.

F. M. RUSSELL
ROXBURY, OHIO R. F. D. No. 2

DOLL SAYS

don't invite Disappointments by delay in ordering your Honey Containers. Make sure of having all the Cans and Bottles you will need, by ordering them NOW. I am splendidly prepared to fill all orders for Friction Top Cans of 3 lbs. to 10 lbs. capacity—5-gallon Square Cans—and ½-lb. to 3-lb. white flint glass Screw Top Honey Bottles. Standard-grade goods, at prices that will interest you.

AN EASY WAY TO
SAVE MONEY

You can save 15 per cent to 20 per cent on the cost of your Honey Cans and Bottles this year, by ordering them from DOLL—and instructing us to ship direct from factory to you.

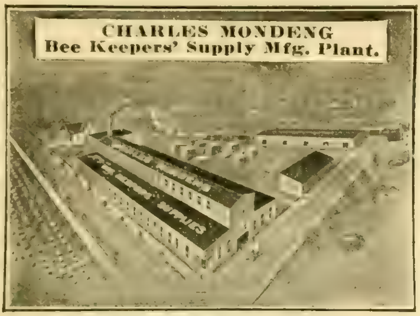
I am also ready to make prompt shipments of anything wanted in the way of White Pine Hives, supers, extractors, Foundation, and other Supplies—none better to be had in either Style, Quality or Construction.

BE ready when the Honey begins to flow, by GETTING ready NOW.

Be sure to get my price quotations
before ordering this year's Supplies.

P. J. DOLL BEE SUPPLY CO.
NICOLLET ISLAND MINNEAPOLIS, MINN.

$30,000 WORTH OF **Bee Supplies**



All boxed ready to ship at once, 275,000 Hoffman frames; also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will take Beeswax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas
Established 1899

HIVES! SMOKERS! FOUNDATION!

MR. BEEKEEPER

Hives! You can't buy any better hives than those we manufacture. Genuine Root Goods. You will need new hives this year to take care of your increase. You may need them soon.

Smokers! You know the Root Company is the leader in the manufacture of smokers. We admit there are no better smokers made than **Root Smokers.**

Foundation! We have the foundation. New Process but good old Root Quality. You can't start your season right without foundation. Spring is here and you must use some new foundation. Get busy. Send in your order now. Everything considered, it pays to buy the best — so

BUY ROOT GOODS

THE A. I. ROOT CO. OF IOWA COUNCIL BLUFFS, IOWA

QUEENS

QUEENS

I have a few very fine Breeding Queens, worth very much more than the price asked. Other grades -:- -:- in season -:- -:-

Untested	$1.50
Tested	2.50
Select Tested	3.50
Breeders	5.00
With nucleus, bees	10.00

Address

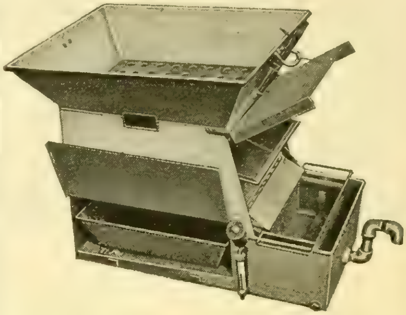
W. H. LAWS

BEEVILLE BEE COUNTY **TEXAS**

THE SEVERIN

Melter & Separator

COMBINED



will take care of those cappings you have been keeping around in the way. A sticky mess. Clean them up as you go and start each morning with everything out of the way. Think of having your wax ready for market direct from the uncapping-knife and the amount of honey saved over the old way has surprised many. The only melter of its kind on the market. Four improvements for 1920. Write for description today.

F. J. Severin Box 145 **Imperial, Calif.**

THAGARD'S ITALIAN QUEENS

I am booking orders for April to July deliveries. My Three-band queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

Untested Queens	$1.50	6, $7.50	12, $13.50
Select Untested Queens	$1.75	6, $9.00	12, $16.00

I guarantee pure mating, safe arrival, and perfect satisfaction. Circular free.

V. R. THAGARD -:- -:- GREENVILLE, ALABAMA

BEES AND QUEENS

We have made arrangements with a reliable breeder in Santa Clara County to supply our orders for bees and queens at popular prices after April 1st. Queens are bred from a queen of the celebrated Pritchard Stock. We have evidence to show that bees from such stock gather larger yields of honey. Send us your inquiries.

BEE HIVES AND SUPPLIES

If you appreciate high quality goods accurately made at very modest prices considering present lumber values, send us your orders and inquiries and you will not be disappointed.

Comb Foundation which excels and always gives entire satisfaction is furnished by

THE A. I. ROOT COMPANY
OF CALIFORNIA

52-54 MAIN ST
SAN FRANCISCO, CALIF.

1824 EAST 15th ST.
LOS ANGELES, CALIF.

Highest Prices Paid for Beeswax

HERE THEY ARE, MR. BEEKEEPER, AT NEWARK

Wayne County, New York, ready to answer your call, the best of everything!!

Just Read This List

Lewis Beeware, Sections, Shipping Cases, Frames, Hives, Hershiser Wax Press, and other supplies.

Dadant's Unexcelled Foundation, all standard weights and sizes. Also the Electric Wire Imbedder.

Bingham Uncapping Knives, including steam-heated with oil stoves and generators.

Bingham Smokers, all sizes, with genuine leather bellows.

Root's Extractors, all sizes of hand and power Machines.

Bee Books written by all leading authors in beedom.

All Sizes of Friction-top Pails and also 60-pound Cans, new and second-hand. Also Cement-coated Nails for nailing beehives and supplies.

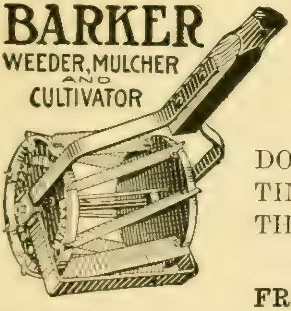
All-sized Spools of Tinned Wire, Bee Brushes, Feeders, Queen-rearing Cages, Bee Gloves, Capping Melters, and all practical supplies you will need.

A Market for your Honey or Wax, and a plant to render your Old Combs and Cappings.

Over 1,000 Beekeepers took advantage of this Service Station at Newark in 1919, for the first time. Now *all together* for a greater 1920.

New Catalog Free, and Our Discounts Will Save You Money. Address

The Deroy Taylor Co., -:- Newark, Wayne Co., New York



Weeds and Mulches

In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER MANUFACTURING CO.
Dept. 10 David City, Nebraska

BARKER
MFG. CO.
Dept. 10
DAVID CITY, NEB.

Gentlemen. — Send me postpaid your free book and Factory-to-User Offer.

Name ________________

State Town R. R. No. Box

April Showers Bring May Flowers

They also bring in the orders.
Will yours be among them?
How many times have you
said, "Next year I'll
order early."
Why not
do it
this
year?

Have you tried our
new foundation?
It is far
superior
to any
that has
yet been
placed on
the market.

Send us your
beeswax.
We are
always
glad
to
receive
it

Are You Going to Syracuse for Supplies?

Veils
Smokers
Tools
Hives
Supers
Sections
Foundation
Extractors

and pay good
prices.

Write for
our 1920
catalog.

We can
supply all
your wants
in the bee
line.

F. A. Salisbury, 1631 W. Genesee St., Syracuse, N. Y.

QUEENS

OF QUALITY

FARMER'S QUEENS SPEAK FOR THEMSELVES.

Mr. Beekeeper, why not get a good queen while you are buying? Farmer's queens produce workers that fill the supers quick with honey that is most delicious to eat. They are bred for honey production strictly. Shipping season is here; now is your time to head your colonies with a good queen; one that will keep the hive chock-full of bees at all times, makes the biggest yields of honey, sting less and look the prettiest. Our strain of Italians will go a long distance after nectar; in a high degree they are very resistant to disease, gentle and beautiful, not given to swarming, hardy, long-lived. We breed from imported stock from Italy, the very best obtainable for honey-gathering; they are known thruout the world; they don't need any recommendation.

PRICES FROM APRIL TO JULY:

	1	6	12	100
Untested	$1.50	$7.50	$13.50	$1.00 each
Select untested	1.75	9.00	16.50	1.25 each
Tested	2.50	13.00	24.50	2.00 each
Select tested	4.00	22.00	41.50	3.35 each

Guarantee? You take no risk when you buy our queens. We guarantee them to reach you safely, to be purely mated, and we leave the word satisfaction entirely to purchaser; he is the sole judge. Why we do this is because we know what we are going to send out. If they don't prove up to your satisfaction, return them and your money will be refunded. Shipments made on time. Reference to our standing: Bank of Ramer, Ramer, Ala.

The Farmer Apiaries . . . Ramer, Alabama

"Where the Good Queens come from"

QUEENS, PROVEN QUEENS

There's no excuse for having inferior queens in those colonies from which you are expecting that bumper honey crop, which you might not get for the sake of taking chances. It takes the same expensive equipment and labor to care for the colony that pays a dividemd and the one that does not. A few dollars spent for good queens is the best insurance you can carry for your business, whether you are farmer beekeeper or in the commercial class. None of my queens are "baby nuclei" reared; consider what this may mean to you. Remember what an authority and beekeeper Mr. Doolittle was and that he spent the better part of his life in breeding and improving his stock of Italians, and I am breeding from his stock. Prices are as follows, terms strictly cash, one-fourth with order, balance before shipping.

	Before July 1st			After July 1st		
	1	6	12	1	6	12
Untested	$2.00	$8.50	$15.00	$1.25	$6.50	$11.50
Select Untested	2.25	9.50	18.00	1.50	7.50	13.00
Tested	3.00	16.50	30.00	2.00	10.00	18.50
Select tested	3.50	19.50	35.00	2.75	15.00	27.00

Larger quantities for less, in proportion to number and time wanted. No nuclei except to accompany tested or select tested queens.

JENSEN'S APIARIES LOWNDES COUNTY **PENN, MISSISSIPPI**

INDIANOLA APIARY

Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, $1.00; Tested, $1.50. Nucleus, $2 per frame, queen extra.

J.W. SHERMAN, VALDOSTA, GA.

BE FOREHANDED

Mr. Beekeeper and anticipate your needs for the coming season and order early. Root's goods in stock at factory prices. Send for 1920 catalog.

F. D. Manchester R. D. No. 2 **Middlebury, Vt.**

Forehand's Three Bands

THE THRIFTY KIND

We have been breeding these queens for the market for over a quarter of a century. They are bred from the imported Italians, but after years of select breeding we have brightened the color and retained the good qualties of their mothers.

After years of select breeding we have built up a strain of bees that are surpassed by none but superior to many. Our queens are thrifty, hardy, gentle, and beautiful.

PRICES

After April 1, to July 1

Kind	1	6	12	100, each
Untested	$1.50	$7.50	$13.50	$1.00
Select Untested	1.75	9.00	16.50	1.25
Tested	2.50	13.00	24.50	2.00
Select Tested..	4.00	22.00	41.50	3.35

Pound Bees from April 15 to June 30

Size	1	25 or more
One-pound package..........	$3.00	$2.75
Two-pound package..........	5.00	4.60
Three-pound package........	7.00	6.45

Add the price of the queen wanted.

We guarantee pure mating, safe arrival and satisfaction.

W. J. FOREHAND & SONS -:- FORT DEPOSIT, ALA.
THE BEE MEN

QUEENS Bees by the Pound *QUEENS*

Booking orders now with one-fourth down, balance just before shipping. We have for several seasons shipped thousands of pounds of bees all over the United States and Canada.

From Wisconsin: "Last year when my old-time beekeeping friends heard that I had bought bees from a man in Texas they called me a fool; but now I have more bees and more honey than any man in Green county. It is the talk of this part of the woods." (Same party has in his order again for over a thousand dollars' worth for spring shipping.)

From West Virginia: "The State Apiarist pronounced my queen one of the finest queens he ever saw. To say I am well pleased would be to put it mildly. Will want more bees and queens in the spring."

Guarantee shipment to be made on time. **Free** circular explains, also gives prices on bees by Parcel Post, Nuclei, etc.

Prices f. o. b. Here, by Express.

1-lb. pkg. bees,	$2.40; 25 or more...	$2.16
2-lb. pkg. bees,	4.25; 25 or more...	3.83
3-lb. pkg. bees,	6.25; 25 or more...	5.62

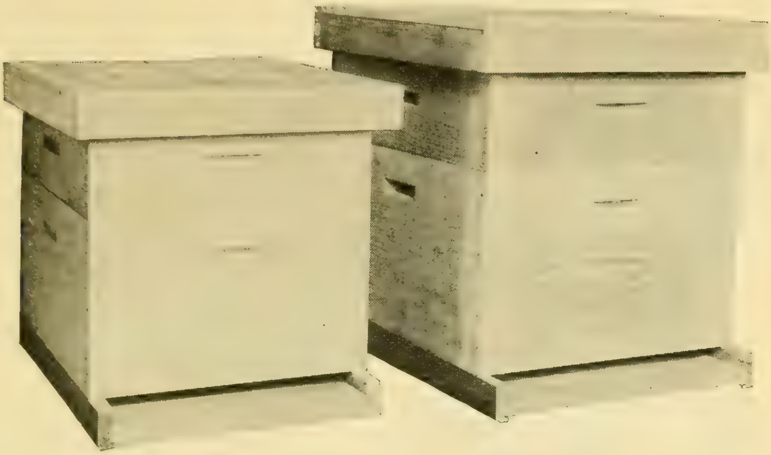
Queens.

Untested, $1.50 each; 25 or more....	$1.35
Tested, $2.50 each; 25 or more......	2.25
Select tested, each.................	3.00

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALALLEN, TEXAS
E. B. AULT, Prop.

Modified Dadant Hive



The Modified Dadant Hive has 40 per cent larger Brood Comb Area than the Ten-Frame Langstroth Hive.

A glance at this illustration shows you why the Modified Dadant hive should be in your apiary. See the large size compared with the 10-frame " Standard !" Features embodied in this hive are:

1. A deep frame.
2. A large brood-chamber in one story.
3. Ample ventilation by wide frame spacing.
4. Excellence in wintering.
5. Swarming easily controlled.

Modified Dadant Hive Features

1. **Eleven frames, Langstroth length, Quinby depth.**
2. **Frames end-spaced 1½ inches for swarm control.**
3. **Extracting frames 6¼ inches deep.**
4. **Dovetailed body, regular reversible bottom and metal roof cover with inner cover.**
5. **Langstroth "standard" equipment easily used with it.**

Made by The G. B. Lewis Company; sold by distributors of Lewis " Beeware !"

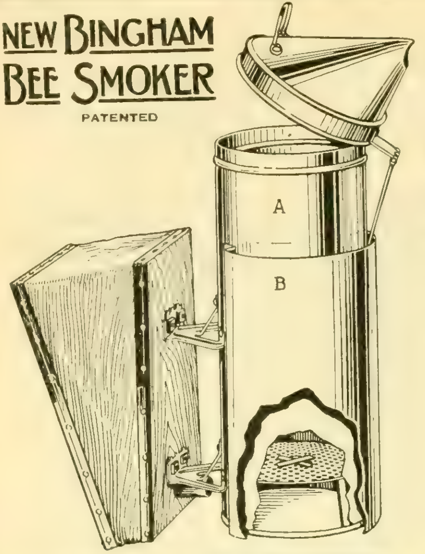
For free booklet write either to G. B. Lewis Co., Watertown, Wis.,

or to

Dadant & Sons, Hamilton, Illinois

NEW BINGHAM BEE SMOKER

PATENTED

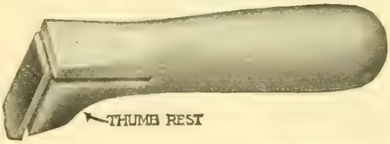


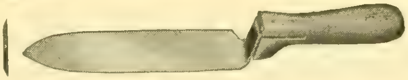
The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey producers in the World. It is now made in five sizes.

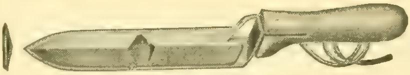
Postage extra	Size of stove inches	shipping weight lbs.	price
Big Smoke, with shield	4 x10	3	$2.50
Big Smoke, no shield	4 x10	3	2.00
Smoke Engine	4 x7	2¼	1.50
Doctor	3½x7	2	1.15
Conqueror	3 x7	1¾	1.00
Little Wonder	3 x5½	1½	.80

Smoke Engine or Doctor, in copper, $1.00 extra.

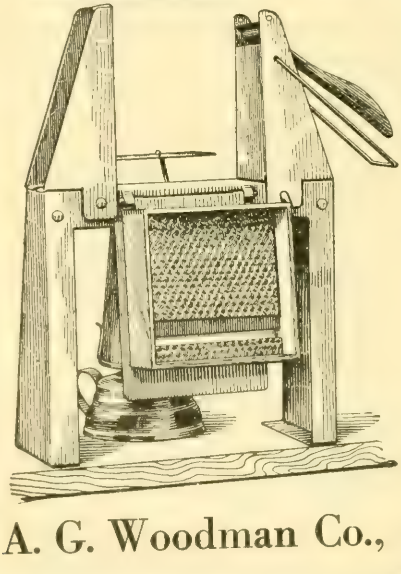
The Big Smoke has just been produced in response to a demand for a larger-size smoker, one that will hold more fuel, require filling less often, from extensive bee handlers. The Shield, designated by the letter B in the cut above, is designed as a matter of protection from the hot fire pot. Many hold the smoker by the bellows between the knees when at work, and the shield will prevent burning of the trousers or one's legs.







The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

TIN HONEY PACKAGES.

2 lb. Friction top cans, cases of 24
2 lb. Friction top cans, crates of 612
2½ lb. Friction top cans, cases of 24
2½ lb. Friction top cans, crates of 450
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 203
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 113

Special Prices.

Crates of 100 five-pound pails	$ 8.00
Crates of 200 five-pound pails	15.00
Crates of 100 ten-pound pails	12.50

Ask for quotations on 60-pound cans.

Shipments made from Michigan, Ohio, Illinois, and Maryland factories.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

THE BIG HIVE

HOW LARGE A HIVE? Beekeepers make very different answers. No one hive can serve the needs of all beekeepers and all beekeeping conditions. So some beekeepers still swear by the Langstroth 8-frame hive, and tell you why it is best for their locality and their honey-flow. They won't have any other. Very many more will say the 10-frame Langstroth is just right. In these later days, there are excellent beekeepers, too, who declare for a bigger hive—they want a deeper hive than the Langstroth with deeper frames, or they want a hive big enough to hold 12 or 13 of the standard Langstroth frames.

THE JUMBO HIVE.

To meet the requirements of beekeepers who have wished the bigger hives, this Company has been manufacturing the "Jumbo" hive for more than 20 years. It is a deep hive, being 11 13/16 inches in depth, and the frames are 11¼ inches deep, or 2⅛ inches deeper than the regular Langstroth. Otherwise, it is standard Langstroth. It will take 10 L. supers, covers, bottom-boards, etc., without any change whatever. It has 3,400 square inches of comb capacity as compared with 2,700 in the standard 10-frame hive. It provides completely for the larger brood-chamber, better swarm control, good ventilation, and excellent wintering features, claimed for the deep hive by those who prefer it.

THE SQUARE JUMBO HIVE—13 FRAMES.

For those wanting an even larger deep hive than the Jumbo, we supply the Square Jumbo. The depth is the same as the regular Jumbo, but it has 13 frames.

The Standard 10 Frame Hive. The Jumbo. The Root Square Hive.

This big Jumbo has a comb capacity of 4,400 sq. ins. with 13 frames (or 63% more than the 10-frame L. hive) and 4,080 with 12 frames and the 1½-in. spacing. It makes a square hive—easy to manipulate because it fits the bottom-board however it is faced, and the supers and covers are more easily placed. This hive meets the wants of the advocates of the big, big hive—it is deep and wide both. A shallow-depth super is furnished with this hive.

THE ROOT SQUARE HIVE—13 L. FRAMES.

We have now been manufacturing this large hive for a year. It meets the needs of many progressive beekeepers who want a large brood-chamber for building up enormous colonies for the honey flow, and yet permits the use of the standard L. frames which so many beekeepers have on hand. The single brood-chamber holds 13 frames with 1⅜-in. spacing, giving a comb capacity of 3,480 sq. ins. (30% more than the standard 10-frame Langstroth); or it will hold 12 Hoffman or metal-spaced frames, giving 1½-in. spacing, with one-fifth more comb capacity than the 10-frame hive. Equipment for 1½-in. spacing at the same price as our regular 1⅜-in. spaced frames. It has the advantages of easy manipulation due to being square—fits the bottom-board however turned, thus permitting placing combs parallel to the entrance for winters—and supers and covers are easy to place in position. This hive gives a large brood-chamber and either the 1⅜- or 1½-in. spacing, while it requires only the regular L. frames so generally owned by beekeepers. Shallow extracting supers are regularly furnished with this hive, depth 5⅝ ins., frames 5⅜ ins. deep.

Square Jumbo and the Root square (13-fr.) hives furnished at present from Medina only. Write for full description and detailed prices.

THE A. I. ROOT COMPANY, MEDINA, O.

Constructive Criticism

Has been our watchword in office, factory, apiaries, and shipping room since we started manufacturing Dadant's Foundation over forty years ago.

Any possible improvement in manufacture, packing, etc., suggested to us has been painstakingly investigated and, if desirable, acted upon. That is why

DADANT'S
FOUNDATION

is recognized by its thousands of satisfied users as most desirable and used by them in their apiaries exclusively.

They are assured of a standardly uniform product made as nearly perfect as is possible by human efforts.

Dadant's Foundation is the result of over forty years' concentrated effort and accumulated experience.

Every inch, every pound, every ton, equal to any sample we have ever sent out.

Ask your dealer for Dadant's Foundation. If he hasn't it write to us.

Catalog of Bee Supplies, prices on working wax into foundation, and our prices on beeswax for the asking.

Dadant & Sons, Hamilton, Illinois

MAY 1 - 1920
Agricultural
College

Gleanings
in
Bee Culture

Migratory Beekeeping in the Sage Regions of Southern California

VOL. XLVIII May, 1920 NUMBER 5

HAVE YOU RECEIVED OUR
1920 CATALOG?

If not drop us a Postal at once.
We manufacture

BEE HIVES

-:-

BEEKEEPERS' SUPPLIES

-:-

MILLER'S CALIFORNIA FOUNDATION

Send
us your wax and
slumgum.

MILLER BOX MFG. CO.
201-233 NORTH AVENUE 18
LOS ANGELES, CALIFORNIA

Tin Containers

A Complete Line. Your Orders Solicited for

Friction-Top Cans and Pails

Five-gallon Square Cans
with Screw or Solder Cap

Packers' Cans
Open Top or Hole and Cap Styles

Wax Sealing Preserving Cans

Unexcelled manufacturing and shipping facilities.

W. W. Boyer & Co., Inc.
Baltimore, Maryland

"Griggs Saves You Freight"--Toledo

May is here, and the good familiar song of the Honeybees in the fruit bloom with it. Just one more month and the great honey harvest will be upon us, but the question is will you be prepared? Don't lose the best of the crop, because you waited to get your supplies. Order them today, and from TOLEDO, the most direct line to you in the country, and shipments go forward promptly, and at factory prices.

LIVE BEES IN 3-LB. PACKAGES WITH QUEEN.

If you have lost any bees the past winter, let us send you some of our 3-lb. packages next month to replace them, and save those good combs from the moth worm; besides, bear in mind one package will pay for 3, and the 3-lb. package is the most profitable to buy. Only a limited number to spare so order today.

NEW AND SECOND-HAND HONEY CANS.

We have a good stock of both new and second-hand cans. Our second-hand cans have only been used once, and are nice and bright inside, and in good reshipping cases; they are as good as new and only one-half the price of new; they are going fast; so don't delay, order today.

BEESWAX—BEESWAX.

We have an unlimited demand for good, first-class wax and will pay highest market price for all grades, but for Fancy Yellow Wax we will pay a premium over the market price. Write us how much you have and price wanted in first letter.

Free Catalog and Special Bee Price List

We want every beeman to have our catalog, and your name and address upon a postal will bring it. Write today.

THE GRIGGS BROTHERS CO. Dept. No. 25 TOLEDO, O.

"Griggs Saves You Freight"

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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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A. I. ROOT, Editor Home Dept.
IONA FOWLS, Assistant Editor
H. G. ROWE, Managing Editor

Order Your Bee Supplies Now

NOW is the time to check up on your hives and accessories to make sure that everything is complete and in perfect condition for the coming season. Our complete line of Bee Supplies includes everything needed by the modern Beekeeper. Besides our own exclusive articles, we are distributors for the famous Lewis Beeware line, and dealers in Root's Extractors and Smokers, and Dadant's Foundations. Orders placed now can be filled promptly. Prices on many articles are sure to advance within the next few months. Send for our large 1920 Catalog today.

Beeswax Rendered from Old Combs

WE pay you the highest market price for rendered wax, less 5 cents per pound rendering charge. Our special hydraulic steam wax press gets the very last drop of wax from old combs and cappings assuring you maximum profit on them. Write for full particulars.

Best Prices Paid for Honey

Tin Rabbets,
Hives, all sorts
Extractors

Foundation, Dadant's
Root's Smokers
Excluders, all makes
Division Board

Wax Extractors

Metal Spaces
Uncapping Knives
Tin Tacks
Honey Boards

Covers for Hives
Observation Hives

SEND us samples of your honey and we will quote you a price equal or better than that of any other concern. We buy and sell both comb and extracted honey. Cash remitted in full the same day shipment is received.

Send for Our Large New 1920 Catalog

THIS new catalog contains over 40 pages of every variety of Beekeepers' Supplies, including all the latest and most improved devices. It is really a valuable reference book on beekeeping accessories. -:- -:- -:- -:- -:- -:-

THE FRED W. MUTH CO.
"THE BUSY BEE MEN"
CINCINNATI, O

BEESWAX WANTED

We require approximately 50 tons of beeswax during the next three months, to take care of the enormous demand for SUPERIOR FOUNDATION. We are paying highest cash prices, and an extra allowance of several cents per pound when exchanged for foundation, bee supplies, or honey cans. Write for prices and shipping tags, stating quantity.

SUPERIOR FOUNDATION

Get our prices on your foundation requirements for the season. We maintain the same high quality in every pound we manufacture. SUPERIOR FOUNDATION assures SUPERIOR RESULTS.

BEE SUPPLIES

We carry a complete stock of bee supplies and honey cans, and can fill your entire order. Prices on request.

Superior Honey Company -:- Ogden, Utah
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

BEE SUPPLIES BEE SUPPLIES

SERVICE & QUALITY

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog---better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & COMPANY

2146 CENTRAL AVE. CINCINNATI, OHIO

HONEY MARKETS

Since Apr. 15 there has been a decidedly better demand for honey because of the runaway price of sugar. The inquiry from large buyers has been active, and the interest in the market has been keen. What the price of honey is or is to be rests largely with the immediate future of the sugar market. What that is to be, nobody knows. All kinds of predictions are heard as to 30c and even 35c sugar prices. This has resulted in a very decided strengthening of the honey market that makes the U. S. Government Market Report (date of Apr. 15) printed below seem rather stale. As late as Apr. 10 The Market Reporter, published by the Bureau of Markets, U. S. Dept. of Agriculture, heads its latest discussion of the honey situation with "Dullness in Honey Market." This condition has passed—at least so long as sugar prices continue to soar.

U. S. Government Market Reports.

HONEY ARRIVALS, APR. 1-15.

MEDINA. O.—1,000 pounds from Pennsylvania arrived.

SHIPPING POINT INFORMATION—APR. 15.

LOS ANGELES, CALIF.—Demand and movement improving on account of sugar shortage, market active, little change in prices. Carloads f. o. b. usual terms, per lb., white orange blossom 17-17½c, white sage supplies cleaned up, light amber sage supplies very light 16c, extra light amber sage supplies cleaned up, light amber alfalfa, supplies light 15½-16c, white Shasta 16½c. Beeswax, demand and movement moderate; in less than carload lots, 42-43c per lb.

SAN FRANCISCO, CALIF.—Demand and movement good, market active, prices slightly higher on account of high price of sugar. Cash to beekeepers, per lb., extracted, light amber alfalfa 14-14½c. Beeswax, 39-41c.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

BOSTON.—Supplies light, demand very limited, market dull. Sales by jobbers to grocers, per lb., comb, New York and Vermont, best 33-37c per section; some light sections 30c. Extracted, California, light amber in 60-lb. cans 22-23c per lb. Beeswax, no sales.

CHICAGO.—No carlot arrivals, supplies moderate, moderate inquiry, demand and movement slow, market steady. Sales to jobbers, extracted, per lb., California, Idaho, Colorado, Wisconsin, white 18-20c, light amber mostly 17c, dark amber 16-16½c, Cuban light amber 14-14½c. Comb, supplies light. Idaho, Colorado, Wisconsin, No. 1, 24-section cases $7.75-8.00. Beeswax, receipts light, supplies moderate, demand and movement good, market steady. Sales to jobbers, per lb., California, Colorado, Minnesota, light 42-45c, dark 40-41c.

CINCINNATI.—No arrivals, demand improving but practically no movement, no supplies on market. Beeswax, demand and movement good, market steady. Sales to jobbers, per lb., average yellow 44-46c.

CLEVELAND.—Supplies liberal, demand and movement moderate. Sales to jobbers, per lb., Western, 60-lb. cans dark amber 22c, light sage 20-25c.

KANSAS CITY.—Since last report 1 car Oregon, 1 car Idaho arrived. Supplies liberal, demand and movement moderate, market steady. Sales to jobbers, comb, 24-section flat cases Missouri light $8.00-9.00, Western light No. 1 mostly $7.50. Extracted, per lb., Western, light amber 20c, dark 15-17c.

MINNEAPOLIS.—Supplies liberal, demand and movement limited, market steady. Sales direct to retailers, comb, Western, No. 1 white, 24-section cases $7.25. Extracted, Western, 60-lb. cans light amber 20-21c per lb.

NEW YORK.—No domestic arrivals since last report on account of strike and embargo. Supplies light, demand and movement slow, market dull and unsettled. Sales to jobbers, per lb., extracted, domestic, California, white orange blossom 18-19c, light amber sage 15-16c. New York, sweet clover 15½-16c. Comb, supplies exhausted. Beeswax: No domestic arrivals since last report on account of strike and embargo, supplies light, demand and movement light, market dull. Sales to jobbers, per lb., New Yorks and Middle Westerns and Californias, light 38-39c, dark 37-38c. South American, light 41-45c; African light 33-36c, dark mostly 33c.

PHILADELPHIA.—No arrivals, no sales reported.

ST. LOUIS.—Supplies moderate, demand and movement slow, market dull. Sales to jobbers, per lb., extracted, Southern, 60-lb. cans light amber 15-16c, dark 13½-15c. Comb, no supplies on market. Beeswax, no sales.

ST. PAUL.—Supplies moderate, demand and movement limited, market steady. Sales direct to retailers, comb, Western, No. 1 white, 24-section cases $7.25-7.50.

George Livingston,
Chief of Bureau of Markets,
U. S. Dep't of Agriculture.

Special Foreign Quotations.

LIVERPOOL.—During the past month the market has been very quiet, with a limited trade. The following sales have been made: 170 barrels Chilian, chiefly No. 2 at $21.25 per cwt. No. 1 at $23.75 to $24.35 per cwt.; 60 cases Guatemala at $23 per cwt. Other honey has been selling at late rates.

The beeswax market is also quiet; 230 bags of Chilian have been sold at $54 with retails of fine yellow to bleached at $54.50 to $60.00.

Taylor & Co.
Liverpool, England, March 30, 1920.

CUBA.—Honey today is worth $1.15 a gallon; wax brings $37.50. Adolfo Marzol.
Matanzas, Cuba, Apr. 7, 1920.

Our corps of actual honey-producers were not called upon for their opinions as to prices and conditions for this month, as so little honey remains in the hands of producers.

BEES WANTED.—I have customers for nearly 500 colonies of bees. Prefer apiaries of 25 colonies and more. Shall be glad to hear at once from apiarists having bees for sale in Michigan, Indiana, Kentucky, Ohio, Pennsylvania, or New York. Give full particulars in first letter. Address H. G., care of Gleanings in Bee Culture, Medina, Ohio.

3-Banded Italian Queens

MAY THE FIRST TO JULY THE FIRST

Untested - - 1, $1.50 12, $13.00
Tested - - - 1, $2.50 12, $25.00

H. L. Murry -:- -:- Soso, Mississippi

Dr. J. H. Black, Ft. Deposit, Ala.

Breeder of

Three-band Italian Queens

These queens are as good as can be had. They must be purely mated. Safe arrival guaranteed in United States and Canada.

Untested queens ... $1.25; 12, $12.00
Select untested queens 1.50; 12, 15.00

Dr. J. H. Black, Ft. Deposit, Ala.

ITALIAN BEES AND QUEENS

We are prepared to give better service in every respect than we have ever given in Bees and Queens and supplies

UNTESTED QUEENS

To June 15th		After June 15th	
1	$1.50	1	$1.25
12 or more	1.25	12 or more	1.00

TESTED QUEENS

To June 15th	$3.00	After June 15th	$2.00

BEES

1-pound packages	$3.00	2-pound packages	$5.50

We will furnish one comb filled full of brood with one pound of bees for $5.50, no queen. You are almost sure that these will reach you in perfect shape. You get a 50c comb; they will build up much quicker than a 2-pound package. There is no danger of their swarming out.

NUCLEI

1-frame	$4.00	2-frame	$7.00	3-frame	$9.50

No queens included at above prices.
Nuclei are on good combs, full of brood with plenty of bees.

FULL COLONIES

We can furnish, and can ship on date specified, full colonies of bees in new hives, good comb, and good strong colonies with **Tested Queens:**

8-frame	$18.00	10-frame	$20.00

DR. MILLER'S QUEENS

Let's make this a Miller queen year. Dr. Miller has furnished us breeders from his apiaries, and we are the only ones that he furnishes breeders to. In these queens you get the fruits of the foremost beekeeper of the world. We pay Dr. Miller a Royalty on all queens sold.

To June 15th		After June 15th	
1	$2.00	1	$1.50
12 or more, each	1.60	12 or more, each	1.25

We carry a full line of Root's supplies, including the new Root-Weed foundation, Prompt Service.

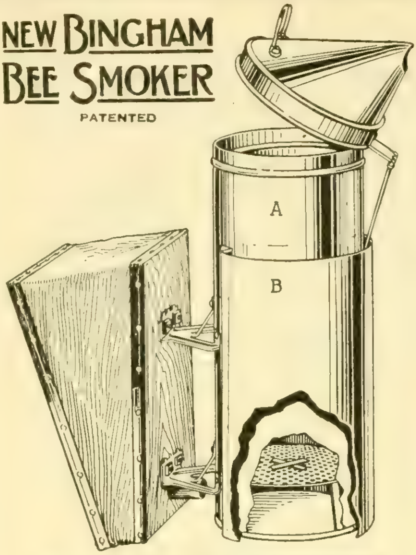
THE STOVER APIARIES

Successors to
THE PENN COMPANY
Penn, Miss.

MAYHEW, MISS.

NEW BINGHAM BEE SMOKER

PATENTED

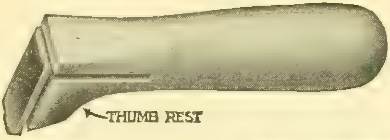


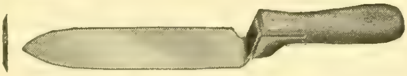
The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey producers in the World. It is now made in five sizes.

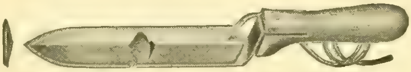
Postage extra	Size of stove inches	shipping weight lbs.	price
Big Smoke, with shield	4 x10	3	$2.50
Big Smoke, no shield	4 x10	3	2.00
Smoke Engine	4 x7	2¼	1.50
Doctor	3½x7	2	1.15
Conqueror	3 x7	1¾	1.00
Little Wonder	3 x5½	1½	.80

Smoke Engine or Doctor, in copper, $1.00 extra.

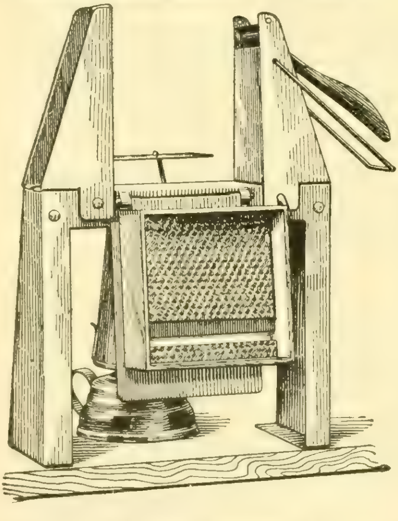
The Big Smoke has just been produced in response to a demand for a larger-size smoker, one that will hold more fuel, require filling less often, from extensive bee handlers. The Shield, designated by the letter B in the cut above, is designed as a matter of protection from the hot fire pot. Many hold the smoker by the bellows between the knees when at work, and the shield will prevent burning of the trousers or one's legs.







The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

TIN HONEY PACKAGES.

2 lb. Friction top cans, cases of 24
2 lb. Friction top cans, crates of 612
2½ lb. Friction top cans, cases of 24
2½ lb. Friction top cans, crates of 450
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 203
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 113

Special Prices.

Crates of 100 five-pound pails	$ 8.00
Crates of 200 five-pound pails	15.00
Crates of 100 ten-pound pails	12.50

Ask for quotations on 60-pound cans.

Shipments made from Michigan, Ohio, Illinois, and Maryland factories.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

Seasonable Suggestions:

Hoffman frames with 1 1-2-in. spacing supplied for either standard or Jumbo depth. Write us if interested.

Note that packages weighing up to 70 pounds may be sent by parcel post. If you are on an R. F. D. route it is often cheaper than express or freight on quite large shipments. We make a specialty of quick service on all such orders.

We want beeswax. We pay the highest market price. How much have you?

We supply Root's goods in Michigan. They are best known for their good quality. Our part is quicker and cheaper service.

Beginners' outfits either with or without bees. Our best equipment included with them. See pages 51-54 of the new catalog.

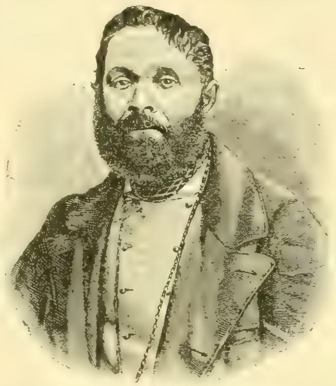
⁋

M. H. Hunt & Son
510 North Cedar Street
Lansing, Michigan

THE FIRST COMB FOUNDATION

Bee comb foundation is a recent product, comparatively. Previous to 1850 very few beekeepers realized the value of elimination of drone-comb. Some few did. These got straight worker-combs by cutting up the crooked combs and including only worker-cells in the frames.

The elder Dadant of the present Dadant firm well remembers this procedure, practiced together with his father, Charles Dadant.


JOHANNES MEHRING.

Not only did they remodel the combs of their own colonies but they bought dead colonies everywhere possible, locally, in spring, to increase the amount of worker comb available.

And yet they were always short of worker-combs.

It was in Europe that the first attempt at foundation was made.

Johannes Mehring, in 1857, produced crude plates of wax with the hexagonal impression. But these were far from perfect. In fact, much drone-comb was built from them. But it was a beginning.

The waffle-iron presses of Rietsche and Given followed. The sheets became of better impression, but were still hard to ship owing to their brittleness.

The roller mills of American make were later to remedy this defect, gradually improving with continued experiment. With the roller mills came

DADANT'S
FOUNDATION

DADANT'S FOUNDATION, *Every inch, every pound, every ton equal to any sample we have ever sent out.*

SPECIFY IT OF YOUR DEALER—IF HE HASN'T IT, WRITE US.

DADANT & SONS, HAMILTON, ILLINOIS

CATALOG AND PRICES OF BEE SUPPLIES, BEESWAX, WAX WORKING INTO FOUNDATION AND COMB-RENDERING FOR THE ASKING.

GLEANINGS IN BEE CULTURE

MAY, 1920

Sugar to be Scarce and High Priced.

FROM SEVERAL reliable sources we have received information that sugar will be very scarce and high priced next fall. We have been told that there is plenty of sugar, but that certain speculators have bought it up and are holding it until they can get their price. It is rather unfortunate that Uncle Sam let go of his control. If there is any unfair speculation or profiteering, it is not too late for that gentleman to take a hand in the matter yet. However, there is no great loss without some gain. If sugar is scarce and high priced, it will make, of course, a better honey market, and honey is about the only real competitor of sugar.

* * *

Shipment of Bees and Queens Delayed.

ON ACCOUNT of railroad labor troubles, resulting in express embargoes thruout the country, Southern queen and bee rearers were unable to ship much by express during about three weeks in April, and shipping facilities are not yet normal. Purchasers of bees and queens in the North, who have placed orders for early shipments from the South, should certainly keep in mind that railroad conditions have very greatly delayed almost all of the earliest express shipments. Parcel post service, which is not generally used by the queen and bee rearers, has been far from normal during this same period. Shipments of bees by parcel post is likely to grow in favor in the future, for the reason that since Jan. 1, 1920, bees and queens can both be insured and sent C. O. D. by mail.

* * *

A Hard Winter and Spring.

TAKING EVERYTHING into consideration, this has been a hard winter and spring on bees. Very severe losses are reported from some sections. In many parts of the country a few days of beautiful spring weather, which started the bees to breeding heavily, have been followed by high winds and blizzard cold. As late as Apr. 19 Colorado and Nebraska suffered a severe blizzard. We are expecting to hear reports of wide-spread spring dwindling. Where the bees have been well housed in cellars, or well packed, as they are farther north and in Canada, there will not be heavy losses. But last fall the high price of honey induced many beekeepers to extract too closely. In spite of warning to get sugar early, many beekeepers have had either no sugar at all or were compelled to feed brown sugar. This latter, in many cases, caused dysentery. Altho at present unable to give definite figures on wintering, the Department of Entomology at Washington reports heavy winter losses thruout the country, due to poor stores and prolonged confinement to the hives.

* * *

New Light On European Foul Brood.

"A STUDY of the Behavior of Bees in Colonies Affected by European Foul Brood" is the title of Government Bulletin, No. 804, by Arnold P. Sturtevant. This bulletin which was issued in March is a preliminary report of a series of investigations started in the spring of 1918.

During regular apiary work, important observations by such men as Dr. Miller, Alexander, and other authorities have led to many accepted practices based on such beliefs as the need of Italian bees, a queenless period, and strong colonies in combating the disease. Mr. Sturtevant gives a short review of these practices and theories already advanced. These he considered very important, but felt they should be backed by proof.

Altho the cause of the disease has already been worked out bacteriologically, he says there can be little further laboratory work on the development of the disease until *Bacillus pluton*, the accepted cause, has been grown in a pure culture.

Accordingly, the experiments reported were made in the apiary, colonies being inoculated by feeding them a sugar solution infected with diseased larvæ, and then a careful record kept of all important factors during the development of the disease. The use of a colored dye in the infected syrup made it possible to note where the infected syrup was first placed and where it was moved. Daily observations were made to determine the earliest appearance of the disease, the period of incubation, the symptoms shown, the rate of increase, etc.

The results of these experiments are exceedingly interesting. *Bacillus pluton* which, as in previous experiments, was found to be the primary invader, was noted in the intestinal tract of the larvæ before death, in fact with the first apparent symptoms. He believes that the intestinal tract is the primary focus of infection, while the secondary invaders appear only after death and are found mostly in the body tissues.

The period of incubation was found to be from 36 to 48 hours, altho the gross symptoms usually did not appear for three or four days, the exact time depending on the honey flow and the strength of the colony. In cases in which colored syrup was given the bees, in from 24 to 36 hours a number of discolored larvæ averaging four days old could be seen, while the larvæ younger than three days never showed any discoloration. This throws considerable light on the necessary period of queenlessness when treating European foul brood.

During the first five to seven days after infection the spread of the disease is slow, but after that quite rapid if conditions are favorable. The beekeeper should, therefore, learn to detect the disease in its first stages in order to treat it early.

The disease is evidently spread in the hives by the house-cleaning bees, and to other colonies by nurse bees drifting from one hive to another. The infective organisms are probably carried on the mouth parts and feet. Under a magnifying glass the nurse bees may be seen sucking up the juices of the dead larvæ, even those so decomposed that they were a coffee-brown and ropy. After working a short time on a larva, the bee will back off and wipe her tongue thoroly with her front feet. Mr. Sturtevant thinks it likely that this might contaminate her so that she would carry infection to the next larva, even tho the juices of the diseased larvæ were not actually fed to the healthy larvæ. He believes the contamination of the mouth parts the primary method of spreading the disease inside the colony. When removing this affected material, he noted the bees took it some distance from the hive before dropping it.

House-cleaning was carried on with more energy by the Italians than by the hybrids, and was especially rapid in the strongest colonies. In one instance Mr. Sturtevant noticed that the presence of a new queen, tho still caged, gave an added impetus to house-cleaning. The knowledge of this fact, we believe, should be of practical help to beekeepers in treating the disease.

Italians were found to resist infection better than hybrids and could more easily overcome the disease after being infected. This resistance of the Italians he believes to be largely due to their better house-cleaning habits rather than to a natural immunity.

A heavy honey flow, he found, had a tendency to prevent infection of a colony, and also to eliminate the disease if already present. This, he says, is evidently on account of the dilution of the infected material and the feeding of fresh nectar to the larvæ.

Altho infection is not always entirely removed by a period of queenlessness, it soon disappears when enough young bees have hatched to assist in the house-cleaning. Except in the strongest Italian colonies that are but slightly affected, requeening is necessary, Mr. Sturtevant says, in treating European foul brood. And under average conditions, it is unsafe to allow less than a 10-day period of queenlessness because of the infectious condition of the diseased material remaining. The confirmation of this one fact alone is of considerable value to beekeepers thruout the country in their future treatment of the disease. All beekeepers are greatly indebted to Mr. Sturtevant for the new light he has thrown on the disease and also to the department that has made his work possible.

This bulletin may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5c per copy.

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Changes in Honey-producing Areas.

AS SOME of our readers perhaps know, E. R. Root has just completed a trip of 8,000 miles over the United States, going from coast to coast and from north to south. While he has been over this territory several times before, this time he took a rapid survey, checking up the changes and the regional differences in the United States so far as they relate to honey plants and bee territory.

Conditions thruout the country east of the Mississippi are about the same as for years back; but winter losses in the North may cut down the yield this year, no matter how good the season may be. In the West, rapid changes, as given in our April issue, page 202, have taken place on account of the onward march of sweet clover thruout the Arkansas Valley, the Rocky Mountain regions of Colorado, Wyoming, Montana, and Idaho.

The last-named territory will furnish about the usual crop of alfalfa and sweet clover—about an equal amount from each. Montana and Wyoming are coming to the front very rapidly as bee States.

The early cutting of alfalfa in the West just as it comes into bloom (a practice that is almost universal now) has been made up and more than made up by the continuous blooming of sweet clover, which is now being grown as a pasture crop where alfalfa won't grow.

The East should understand that much of the alfalfa from the West in the last few years has been about 50 per cent sweet clover. Nor does this hurt it any; for in former days the bottlers were blending the two. These honeys are now already blended by the bees, altho there are localities where pure alfalfa is still obtained. No alfalfa in the South will have sweet clover mixed with it.

Northern Idaho with Eastern Washington is a coming field for honey production, and a number of large apiaries are being established in favorable locations. Yakima Valley produces in favorable years large quantities of choice honey. It is reported on good authority that about 25 cars of honey were shipped from the central part of Washington during the season of 1919.

In northern California there is some new bee territory being discovered. There is a prospect of a wonderful development taking place in the next few years. The seasons are more even from year to year than they are in the southern part of the State. Star-thistle honey, which some experts think is the finest honey in the world, even better than clover, is produced in central and northern California. Then there is the far-famed carpet grass or *Lippia nodiflora*, that is found in the Sacramento regions. All of this country is developing rapidly in fruit-growing and truck-farming. In fact, the Sacramento Valley promises to be the great garden area of the Pacific coast. More wonderful still, white clover is a very important plant in northern California, particularly Shasta and Siskiyou counties. Prof. W. A. Coleman of the University of California is authority for the statement that white-clover honey is produced and shipped by the carload from that part of the State; and white-clover honey—well, it never takes a second place anywhere so far as quality is concerned. He also says that in San Mateo County there are 75,000 acres of sweet clover, and that it is being introduced elsewhere in the State.

There is a prospect this year of a fair crop of sage honey in central and southern California, and there will be the usual flow of orange. The prospects are much better than last year.

In Arizona a great and wonderful change in beekeeping conditions has taken place. The desert plants are about the same as they were. But alfalfa, the great source of honey in former days, is rapidly giving way to the production of long-staple or long-fiber cotton that is used in the manufacture of automobile tires. The Goodyear Rubber Co. owns and operates 12,000 acres for cotton growing. In fact, cotton in the Salt River Valley, Arizona, has practically absorbed all the alfalfa area, so that alfalfa is almost a thing of the past. At first this put the beekeepers up in the air; but they soon found that cotton, while not as heavy a yielder per acre, produces a very superior light-colored honey — lighter in color, in fact, than that from alfalfa. Many are finding that what was supposed to be a calamity may be a blessing after all. Where the beekeepers had a light-amber honey before they now have a white honey and of a very mild flavor. A similar change has taken place in Imperial Valley, California, but on a much more moderate scale.

Some beekeepers of Arizona are taking advantage of the deserts, of which there are thousands of acres, and no overstocking. Few people like or can stand these deserts; but those who can are finding that wild Indian wheat, wild hollyhock, and bottom willow, besides a score of plants that yield honey and pollen the year round, build up colonies so that they are booming in March. These colonies could spare to advantage from two to three pounds of bees each. This desert country can furnish thousands upon thousands of pounds of bees in package form for the orange bloom in California. In fact, it could supply in early spring the whole Rocky Mountain regions with packages of bees to boost colonies that are below par. If interested, write the Lovett Honey Company, Phoenix, Ariz.

In New Mexico the business of wholesale spraying has all but killed out beekeeping in parts of the State, especially around Roswell—not because the trees are sprayed while in bloom, but because the sprays fall on the cover crop beneath the trees. If these cover crops are red clover, sweet clover, or alfalfa, and are yielding honey at the time, the bees are killed off by the hundreds of colonies. Precisely the same thing has occurred in parts of Colorado.

In and near Uvalde, Texas, the once famed paradise of bees, the conditions are much the same as they were twenty years ago. The mesquite, the catclaw, and guajilla hold sway as formerly; but they have their good and bad years. Twenty years ago this territory was covered with beekeepers, and all of them were producing good crops; but a series of bad years intervening put many of the bees and beekeepers out of business. The territory is rapidly recovering, and now there appears to be a prospect of honey from these desert sources. Broomweed, another important desert plant, is scattered over the southern and eastern part of the State.

Texas, like Arizona, on account of the high prices, has gone wild over cotton. A large part of the cultivated land is being turned into cotton, apparently, northeast of the San Antonio. Dry farming is practiced mainly, and cotton thrives; and where cotton grows well will be found bees. While many desert plants like broomweed grow all thru this area of central and northeastern Texas, cotton is the main source of honey.

Honey from cotton is floral honey only in part. Most of this honey is a secretion that the bees gather from the leaves of the plant.

In later issues Mr. Root hopes to go into details, with pictures, pointing out some good bee territory not occupied by bees. Irrigation and sweet clover are doing wonders in the West, and Gleanings hopes to keep its readers posted.

LONG IDEA HIVE AGAIN

Its Value to the Queen Breeder in Control of Swarming One of Its Excellent Features

By E. R. Root

THE Long Idea Hive—Oh, what a name! Is it a long hive or a long idea? Altho the name is not descriptive, yet it has stuck for nearly 50 years. For the benefit of some of our more recent readers I will say that the hive in question is practically a three-story ten-frame hive on a horizontal plane all spread out in one story. In other words, it is a 25- or 30-frame hive, and hence the name—Long Idea.

This hive was exploited as early as 1865, revived in the early 70's, dropped again and revived once more in the 80's; dropped and revived again in every decade until, like Banquo's ghost, it will not down. Perhaps the man who used it most continually, and for the greatest period of time, was the late O. O. Poppleton, of Florida, who began using it in the early 70's in Illinois, and later continued to use it along the St. Johns River, Florida, almost to the day of his death, which occurred Oct. 4, 1917. In 1913, when I went thru southern Florida I ran across the Long Idea Poppleton hive in numerous places. There were a few who got a vision of its possibilities; but most beekeepers after seeing the thing condemned it, even before trying it. Several said they did not see how any intelligent beekeeper like Poppleton could use such a monstrosity, and even I began to pity him till I saw there was method in his madness.

Let me say right here, before I go further, that I am not advocating the hive for general adoption. For certain limited uses it has features the discussion of which will help us to clear up the swarming problem. One thing sure—that a thing that will die and come to life again, and keep on dying and as often come to life again every few years, must have some value. In any case it should be clearly understood that its use is limited to the production of **extracted** honey and queen-rearing. It is entirely unfitted for the production of honey in sections, and not adapted to the needs of large honey-producers.

As a let-alone hive it has no equal. For women and old men, or anyone else who cannot lift heavy supers of extracting combs, it is ideal. For the fruit-grower, the man who has bees only for the purpose of pollinating his fruit trees, it is nearly perfect, because he wants something that will work for nothing and board itself, and that will require a minimum of labor.

Having now made it clear that I am not advocating this hive for general adoption, I shall proceed to elaborate more upon its merits and where it can be used to advantage.

Merits and Use of Hive.

The illustrations given herewith show

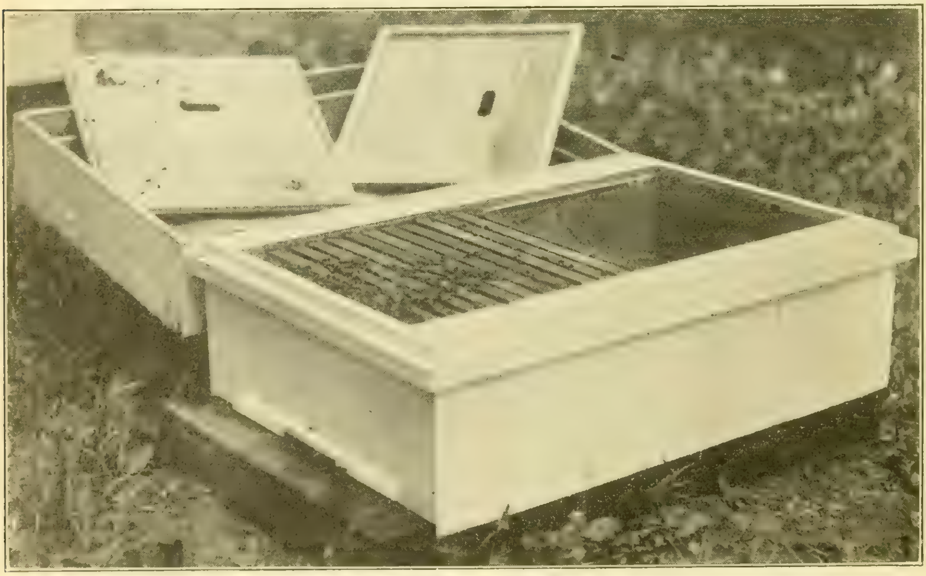


Fig. 1.—The Long Idea double-walled hive, holding 25 Langstroth frames, as used by the Pritchards for cell-building. The double walls and tray of packing give ample protection during winter. It is a very easy operation to open this hive and get at any part of the brood-nest because there is no super or upper story in the way.

several Long Idea hives all in one row. The late Mr. Poppleton said that if he were going to start again he would use the Langstroth frame instead of the American. How many frames shall it have? Twenty-five are enough for a queen-breeder, but 32 is a better number for the extracted-honey producer; because if he should ever have a honey flow large enough to require more than 32 frames he can put on one, two, or three upper stories of ordinary ten-frame hive bodies, and the combined width of these stories side by side will be exactly the length of a 32-frame hive body below.

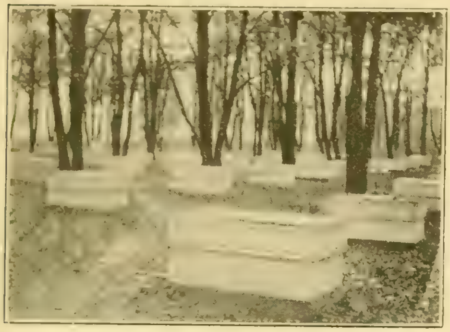


Fig. 2.—General view of the Long Idea cell-building hives. There are 50 in all, not one of which has cast a swarm during the last three years, while every one of the 2½-story colonies of like capacity in standard Langstroth hives has swarmed.

I said this hive is well adapted to old men, women, and girls, or to those who from weakness of the back or otherwise are not able to lift heavy loads. With this hive there is nothing heavier to lift than a single Langstroth frame which, when filled with honey, seldom weighs over 6½ pounds. It is very easy for one to tilt the lid back like opening a trunk, sit on one end of the hive, and work toward the other. (See Fig. 4.)

The brood can be placed at the front end, with the surplus combs in the other. Or the brood can be placed centrally, leaving the store combs on either side. In that case the entrance should be on the side rather than on the end of the hive. When run for the production of extracted honey the combs at one end of the hive can be extracted, the combs replaced, and in a week or ten days later, the combs from the opposite end extracted. No hard-and-fast rule need be applied. The entire manipulation requires no heavy lifting, because the combs one by one can be removed and placed in a box or wheelbarrow and run to the extracting-house to be extracted. A bee-escape or queen-excluder could be used; but these would have to be mounted in a tight-fitting division-board, because the hive, if divided at all, would have to be divided on a vertical plane. As a matter of general practice it is not necessary to use either bee-escape or queen-excluder.

When the time arrives to put the bees away for winter the brood-nest may be left any size desired. It should, however, be contracted to as small a space as possible and yet allow the requisite amount of stores for the size of the cluster of bees. A tight-fitting division-board should then be placed on each side, and leaves or other packing material poured in to fill up the empty space. A tray of packing material placed on top under a deep telescope cover completes the preparation for winter. If the two sides of the Long Idea hive are made double-walled and the space on either side of the cluster is filled with packing material, the colony will be well protected. But if one does not wish to go to that expense he can put the colony into an eight-frame hive, place this in the center of the Long Idea hive, and then put in packing material around it. There should, of course, be provision made for an entrance leading from the inner hive to the outside.

While the first cost of the Long Idea hive is more, it takes in the equivalent of more than a three-story ten-frame Langstroth hive. It does not require the use of additional supers, queen-excluders, honey-boards, nor any special winter hive. Taking the entire season thru, it cuts down the cost of the apparatus, eliminates all lifting of honey, and, what is of considerable importance, it almost entirely eliminates swarming. And this brings me to the question of how it prevents swarming.

How It Controls Swarming.

Before I answer the how and the why, let me relate something of our own experience with swarming at our queen-rearing yards under the control of Mell Pritchard. As every queen-breeder knows, in order to get strong and vigorous baby queens in large cells it is necessary to bring about a supersedure or swarming condition in the colony. If there is not a light flow of honey coming in, artificial conditions should be created by

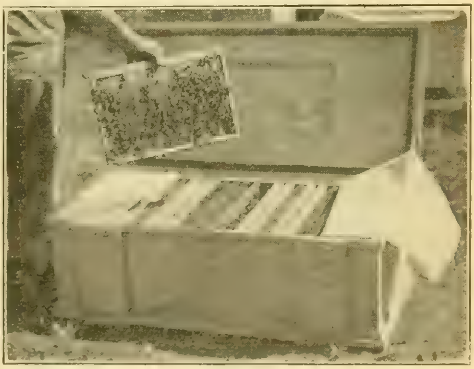


Fig. 3.—The Long Idea hive as used and recommended by Eugene Baker, near Los Angeles, Calif.

feeding a small amount of syrup every day. This feeding starts up breeding, with the result that the colony will prepare to swarm by building cells or accepting artificial grafted cells.

At our queen-rearing yards, during a honey flow, we have always had a great deal of trouble from swarms coming out of our cell-building colonies (usually two-story ten-frame) just at a time when there is no extra help to take care of them. Mr. Pritchard has often been driven to the point of desperation by having five or six swarms come out of his regular two-story Langstroth hives in one day and cluster up among the basswoods 20 or 30 feet from the ground. After one such exasperating experience he came to me one day about three years ago and said he would like to try that Long Idea hive for cell-building. He had read what I said of it, and he had come to the conclusion that swarms would not issue from it as they would from two- and three-story hives when tiered up one above the other. I said:

''Mell, give me your reasons.''

''Bees swarm,'' he said, ''because in an ordinary ten-frame hive the queen is cramped for room. After filling the eight or nine frames she skips the two outside frames because they are next to the cold sides of the hive. She does not like to cross the one or two inches of honey up above the brood; so she stays in the lower story.''

''But, Mell, when the queen is crowded badly, would she not go up into the upper story and lay there if she could?''

''She would if you coaxed her up with a frame of brood,'' he replied. ''But unless that is given her she hesitates to cross the two inches of honey, the seven-eighths top-bar, the three-eighths bee-space, bottom-bars of the frames above, a bee-space between the bottom-bar and the comb above. That seems too far away. The queen is, therefore, practically confined to a circle of brood on eight combs and, as a result, starts cells. On the other hand, when a colony is in a Long Idea hive the queen can occupy a dozen or more combs, the division-board being simply shoved over far enough to permit of the queen's largest capacity.''

The upshot of our conversation was that Mr. Pritchard prepared specifications for 50 Long Idea hives with a capacity of 25 frames. The sides of the hive, or what would be next to the end-bars, were double-walled. A deep cap to provide for a large tray to hold packing material during the winter was hinged like the lid of a trunk.

Now, dear reader, take note that Mell's contention was borne out in actual test for three years. During that time not one of the Long Idea hives cast a swarm, notwithstanding they were crowded to their utmost for cell-building, and nearly every one of the regular two-story hives run for the same purpose swarmed just as they always had done; so you can see that practice bears out the theory.

The superintendent of our wood-working shop, a backlot beekeeper, was so impressed with this hive that he had an extra hive of this pattern made for himself. He says it does not swarm, and yet gets more honey than anything else he ever tried.

I was talking with G. S. Demuth in California a year ago during the progress of those beekeepers' short courses; and, without knowing what Mell had said, he advanced precisely the same theory.

Mr. O. O. Poppleton told me that one of the reasons why he adopted the Long Idea hive was because it eliminated almost entirely the swarming tendency on the part of the bees, and because, being an old man, he could not lift heavy supers. He it was who told me some five or six years ago he had discovered that a queen will expand her egg-laying capacity **laterally** from comb to comb more readily than she will expand vertically into a second story. ''And then,'' said he, ''Mr. Root, the main cause of swarming is a too restricted space for breeding.''

In the February issue I explained a scheme that will go a long way toward making a queen expand the brood-nest vertically in a two-story hive without any action on the part of the owner; but even that scheme will not be as good for the queen-breeder as the Long Idea hive.

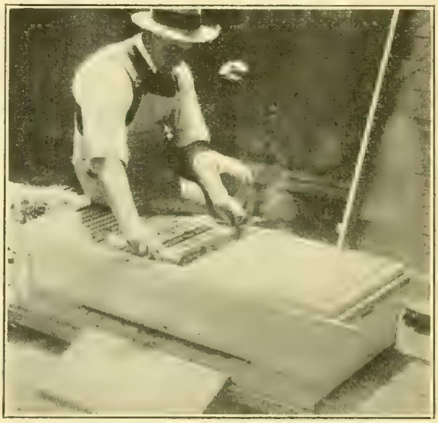


Fig. 4.—A 32-frame Long Idea hive in the apiary of C. F. M. Stone, La Manda Park, California. Mr. Stone, while not an advocate of such a hive, is more than willing to have a few of them put in his apiaries to be tried out. The two side cleats support the telescoping cover, and, projecting out at the ends, make it possible for two persons to pick up the hive. In Mr. Stone's hives the entrance is placed on the side rather than at the end. For the production of honey the side entrance is, no doubt, better.

One can naturally see, from what I have already given, why the Long Idea hive eliminates swarming; why it is especially adapted to cell-building; why it would be ideal for women and children, and men who have gone past the age when they can lift heavy supers. Practically the entire cost lies in the first investment of the hive itself. After that there is but very little expense.

Not for the Average Producer.

Now to the important question, "Would such a hive be practicable for the average honey-producer—the man who has plenty of brawn and muscle, and who may desire to practice keeping bees at out-apiaries, and at the same time do something in the line of migratory beekeeping?" In answer to this I would say emphatically no. In California where migratory beekeeping is getting to be quite common this hive would not answer. However, Mr. Poppleton, in his day the largest migratory beekeeper in the United States, said he liked these hives because when he moved he could pile them up in his boat, one on top of the other, like so much cordwood. To do the loading and unloading he hired negroes. All he had to do was to boss the job. But for the average man who can't hire help, white or black, the Long Idea hive takes too much room or bulk in a wagon or boat and is too heavy to lift alone. When using a regular standard hive, the colony can be confined in one story of small size and weight, and the rest of the equipment can be carried as a separate load.

But there is another thing yet to be considered by commercial beekeepers. I do not know but there are some, including myself, who fear that bees do not store honey as well **laterally** as they do **vertically.** Heat naturally rises, and bees are inclined to move upward with their stores. On this point, however, our old friend Poppleton thought there might be a slight difference in favor of vertical storage; but he added that the difference was but slight.

But the chief objection to the Long Idea hive is that it is not a standard save in the size of the frame.

There is another objection. A whole super of extracting-combs cannot be cleared of bees with a bee-escape, as can be done with one or more stories of a regular Langstroth hive. While a bee-escape can be used in a division-board in a Long Idea hive, the combs would have to be handled **individually.** On the vertical or tiering-up system the combs can be handled in groups of ten or eight according to the size of the brood-chamber. Moreover, a super of such combs is handy for toting to and from the extracting-house. In other words, the combs can be handled in lots of ten, while with a Long Idea hive the combs must be put in a box on a wheelbarrow **one by one,** and on arrival at the extracting-house must be picked out of the box or carrier **one by one.**

Recapitulation and Conclusion.

To recapitulate, the tiering-up or vertical system is better adapted to the commercial honey-producer, while the Long Idea hive, or horizontal system, may be better for the queen-breeder, and for women and children or old men, or for anyone else who cannot do heavy lifting.

When I have explained the merits of the two systems to the commercial honey-producer, I have heard more than one of them who had got past the age of 50 or 60 say: "I am beginning to see the day when I must give up heavy lifting. The elimination of swarming and the elimination of hive-lifting make the Long Idea hive look mighty good to me. I will try a few."

But down deep in his heart the man who has a thousand colonies or more, even if he is 50 or 60, knows that he cannot afford to change over. It is more practicable for him to hire a husky young man, or several of them, to do the lifting for him. During ordinary times he can do this if he cannot now.

If the commercial honey-producer thinks he requires a brood-nest larger than a ten- or eight-frame Langstroth brood-nest, he had better adopt a Jumbo hive. Or, if he feels that he does not want to fuss with two sizes of frames in the apiary he had better use the 13-frame Langstroth hive when his frames will all be Langstroth and all of a size and interchangeable. The back-lotter, if he favors the Long Idea hive, had better try one or two at most, and if he likes these use more later. The average beekeeper should stick to the ten-frame Langstroth brood-nest, which, when the frames are properly wired, will come near solving the hive question.

Fig. 5.—Mell Pritchard and his son Arlie Pritchard in the basswood apiary where 50 of the Long Idea hives are in successful use. Both are expert queen-breeders.

ORGANIZATION WORK

The Building of Strong, Permanent Associations Demands Some Incentive to Membership

By Prof. H. F. Wilson.

In Wisconsin beekeeping has long suffered from lack of organization because people have looked upon it as a more or less uncertain business, and many of our best beekeepers have not conducted the business in a thoughtful and businesslike way. The present development is simply a forward movement that comes with the healthy growth of any similar industry. Beekeeping has always been a big ''small'' industry but lacked development, and a lack of business co-operation among beekeepers has prevented its organization. Beekeeping is now in its ascendency because it was greatly stimulated thru conditions brought about by the war. The uninformed, cut off from the usual supply of sugar, have become acquainted with a better sweet and the possibilities of the humble bee. Furthermore, the business man, who ordinarily thinks of every product from a purely financial standpoint, has been educated in the future of beekeeping and honey production.

What Is Necessary to Membership.

Eight thousand people, more or less, own bees in Wisconsin; but many of these people are also running farms, and the bees are but one of the many side lines kept on the general farm. Because of this fact it is not surprising that so few persons have taken an active interest in local or state beekeeping organizations. In order to have a strong and permanent association of any kind in the industrial world, there must be some strong incentive to membership. In our case co-operation will make incentives.

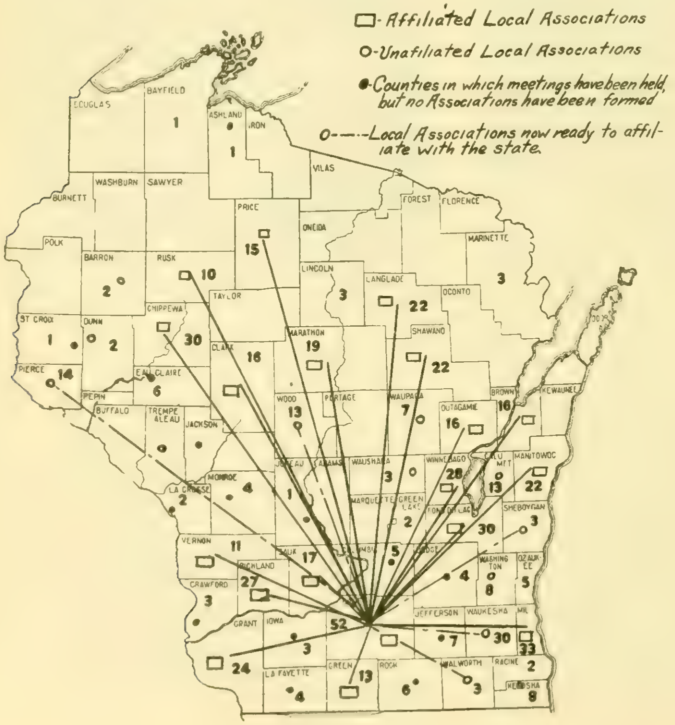
Beekeepers first rallied to the support of the National organization because there was an urgent need for protection. Later, when the immediate cause of that rally was taken care of, the beekeepers became more taken up with local affairs and the support to the National fell off. In the same way local and state associations thrive according to the returns the beekeeper receives. **No association of beekeepers can continue indefinitely unless there is a tangible asset to membership.** Many old-time beekeepers attend the association meetings to meet and talk with old friends, but the younger generation usually consider matters upon a basis of financial returns.

How the Work Began.

Early in 1916 while studying the conditions in this State, it became evident to the writer that, in spite of wonderful opportunities, the beekeeping industry had been declining for a good many years and would continue to decline, unless some strong measures were taken to check what might prove to be a real beekeeping disaster. Inquiry among beekeepers showed that bee diseases, winter losses, and lack of protection for the bees in late fall and early spring are the main causes of the destruction of the bees and a decline in the industry.

It then became evident that some plan must be developed which would interest the beekeepers in co-operative effort for checking the ravages of disease and produce better beekeeping methods. During the winter of 1916-1917 over 2,000 circular letters, containing a list of questions, were sent out to beekeepers. Sixty replies were received, and four men were willing to arrange local meetings.

Personal talks with a number of the bee-


□-Affiliated Local Associations
O-Unafiliated Local Associations
●-Counties in which meetings have been held, but no Associations have been formed
O——-Local Associations now ready to affiliate with the state.
DOUGLAS
BAYFIELD
ASHLAND
IRON
VILAS
WASHBURN
SAWYER
BURNETT
PRICE
FOREST
FLORENCE
ONEIDA
POLK
MARINETTE
BARRON
RUSK
LINCOLN
LANGLADE
OCONTO
TAYLOR
CHIPPEWA
ST CROIX
DUNN
MARATHON
SHAWANO
CLARK
PIERCE
EAU CLAIRE
BROWN
KEWAUNEE
PEPIN
BUFFALO
TREMPEALEAU
JACKSON
WOOD
PORTAGE
WAUPACA
OUTAGAMIE
JUNEAU
ADAMS
WAUSHARA
WINNEBAGO
CALUMET
MANITOWOC
MONROE
LA CROSSE
MARQUETTE
GREEN LAKE
FOND DU LAC
SHEBOYGAN
VERNON
SAUK
WASHINGTON
OZAUKEE
RICHLAND
CRAWFORD
GRANT
IOWA
JEFFERSON
WAUKESHA
MIL
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keepers brought out the fact that many were discouraged, and they did not believe that any organized effort would benefit them. Others were anxious to do something, but did not know what to do. The State Association lacked power to help, and the industry was drifting along at the mercy of the winds. After much correspondence with beekeepers and the officials of various State organizations, a plan for getting the co-operation of the beekeepers was decided upon, and we have followed that plan of organization work successfully to the present time.

Fortunately, plans for reorganization had already been started in Wisconsin when the United States entered the war, and the stimulus brought on by the sugar shortage helped as no other factor could; but had not the government officials also been ready and given us free help, I doubt whether we could have advanced as we have. Our first efforts were certainly most discouraging, and it is no discredit to all who helped, when I say that, had we given up at any time during the last year, the results from the standpoint of organization would have been almost nothing. Of the 28 organizations formed during the first two years of our work 23 have died and have been completely reorganized. Several have been reorganized three or four times.

Meetings and Schools.

The best way to interest people in helping to build up an organization is to give them an active part in the work. This we have done, by giving every beekeeper a chance to do active work in the State Association and by showing the beekeepers themselves that they alone are responsible for improving conditions within the State. We held meetings in every county where the beekeepers were interested and have succeeded in convincing most of the big beekeepers as well as others that they can not succeed alone and would surely fail in the end, if they did not organize and co-operate in fighting foul-brood diseases and in buying supplies and marketing their crop. We have also been able to convince the best beekeepers that they could be helped in an educational way.

With the aid of men from the beekeeping department at Washington one-day meetings have been held as follows: 1916, none; 1917, 21; 1918, 75; and 1919, 62. The average attendance at these meetings has been 22. A total of 53 counties has been reached.

In August, 1919, we held a beekeepers' Chautauqua at Madison with a registered attendance of 161 people. Three years ago 25 people could not have been brought together for such a meeting.

We are also conducting a series of three-day bee schools wherever 25 beekeepers will agree to come. Eight have been held and twelve more are arranged for. The average attendance at these meetings is approximately 30, with 40 in one case. As high as 2,000 colonies of bees have been represented at one school. To educate, to co-operate, to organize, and to improve is the keynote of every meeting and every school. The beekeepers themselves are behind every movement, and their whole-hearted co-operation has made the work a success. Close co-operation exists between the State Beekeepers' Association, the University, and the State Departments of Agriculture, and in every forward movement one helps the other. Every time we write a letter to a beekeeper who is not on our list, we inclose a nice little card inviting him to join the State Association. The response to these cards has been unusually good. A new plan of organization adopted by the State Association in 1917 has also done much in developing a new interest in organization work. The State society is made up of the parent association with state-wide interests and affiliated county or district societies with more local interests.

Local and State Associations.

Thru the Beekeeping Extension Division of the College of Agriculture, local associations have been formed in 30 different counties and districts, and 19 of these have affiliated with the State society. In order to affiliate with the State Association a local society must have 10 members on its rolls who are also members of the State Association. The other members of a local are not required to belong to the State Association; but, as a rule, when locals become affiliated, the dues of the local are made to include State Association dues, and each local member automatically becomes a state member. This plan also provides for a board of managers, who govern the policies of the Association. This board is composed of delegates, elected one from each affiliated association, and exclusive of the president and secretary of the association who are ex-officio members; its members constitute a nominating committee for the selection of state officers. This makes the Association democratic and gives each local an equal interest in the management of its affairs.

Now as to the result: The Association has increased its membership in three years from 100 to more than 550; 30 locals have been formed with a total membership of 1,150 members, and 19 of these with 625 members have become an active part of the mother organization. Members of local associations are benefited thru co-operative buying and marketing and educational meetings. Members of the State Association in addition receive each month a copy of Wisconsin Horticulture, in which there are four pages of beekeeping matter, and also receive the aid of the State Association should occasion require. Because of organized effort the State Association was able to have a new bee law, with a substantial appropriation, passed at the last legislature with but a single dissenting vote. The State Association has also secured the co-operation of the state and national marketing bureaus and thru the State Entomologist's office the state marketing commission will receive and list in a weekly letter, sent out to commission firms, all offerings of honey. This will help every beekeeper who does not have a local market for his honey to find a market for his crop.

State, University, and Beekeeper Co-operate.

Fortunately, the University and the State Department of Agriculture have their lines of work definitely outlined and separate, and it has been possible for all parties to work in close co-operation.

The regulatory work is by law in the State Department of Agriculture, while the educational work is given to the College of Agriculture of the University. By agreement the organization work in connection with the State Association has been left to the University, but the State Department will in general not attempt clean-up campaigns in any district where an organization does not exist. This is a very important consideration because it means that the beekeepers in any locality can very easily get State aid, but they must request assistance and agree to give united support in helping to eradicate disease. Furthermore, the burden of success in each campaign is in the hands of the beekeepers themselves. The State Apiary Inspector does not have sufficient funds, nor it is possible always to get competent inspectors to cover the entire State at once. A system that is satisfactory to all parties concerned, however, has been worked out whereby a local organization may select its own inspector as follows: Three men are elected by the local from its members, and they are compelled to pass an examination conducted by the State Inspector under civil service rules. The person receiving the highest rating is then appointed a deputy inspector for the county or district in which he resides. In case of special need an inspector from the State office can always be secured.

Co-operative work is now carried on to a greater extent thru H. L. McMurry, special field agent, working on a joint project between the College of Agriculture, the United States Department of Agriculture, and the State Department of Agriculture. Mr. McMurray acts as State Apiary Inspector from May to October and Special Extension Agent from October to May.

We are able to keep the beekeepers informed of our meetings by a thoroly planned advertising campaign, which extends not only to all parts of our State but reaches also adjoining States, as demonstrated by the inquiry received from outside the State regarding the three-day bee schools. A complete list of beekeepers, so far as we are able to obtain addresses, is filed in our office, and whenever a meeting is to be held in any locality all beekeepers in that county are notified.

Three weeks before each meeting, a special write-up with a program is sent to every newspaper within a given area, and this is followed two weeks later with another write-up calling attention to the importance of the bee industry in that particular part of the State and the value of a co-operative organization. However, the biggest advertisement is to hold successful meetings and send the attending beekeepers away satisfied.

Madison, Wis.

Wisconsin Beekeepers' School and Chautauqua of 1920 held at Madison.

FROM THE FIELD OF EXPERIENCE

REARING ONE'S OWN QUEENS

A Very Sure and Practical Method of Getting Excellent Results

[This paper was read by Jay Smith of Vincennes, Ind., at the last meeting of the National Beekeepers' Association held at Buffalo in March. It was voted to request both Gleanings in Bee Culture and the American Bee Journal to publish this valuable paper.—Editor.]

At the risk of being accused of "harping," I am going to state that few of us realize the importance of having vigorous young queens at the head of all of our colonies. Elisha Gallup said, "Around the queen centers all there is in apiculture." Doolittle said, "Upon no other one thing does the honey part of the apiary depend so much as it does upon the queen." Dr. Miller says, "The queen being the very soul of the colony, I hardly consider any pains too great that will give better queens." Quinby said, "Too much importance cannot be attached to the necessity of keeping each hive supplied with a good queen." Dr. Phillips says, "Unless the queen at the head of the colony is a good one, it is useless to expect that colony to be productive."

We hear a good deal of discussion as to the best strain of bees, and as to the advisability of breeding from the queen whose colony produced the most honey. The question frequently comes up, "Which are best, the goldens, three-banded, or leather-colored?" While all of these are important, yet I believe what is far more important is, **how the queen is reared.** To rear the best queens it is important that they have the best care from the time the larva hatches from the egg until the queen is mated and laying.

The honey-producer who raises his own queens has the following advantages over the commercial queen-breeder: He requires but a limited number; he can choose the time of the year when the honey flow is just right; and he will usually find it practical to introduce the queen-cell to the colony instead of allowing the queen to become mated from a nucleus hive, thus saving the work and expense of nucleus hives and the risk in introducing the laying queen. The disadvantage of this system is that it is necessary to keep the colony longer without a laying queen. But if the cells are produced as the honey flow is coming on, the colony that is made queenless will lose little, for the workers that would have hatched if their laying queen had been left with them, would not become fielders till after the honey flow was over. Then again, if one should have European foul brood in the yard, this method of requeening would be the very best method for eradicating the disease.

I shall not attempt in this short article to give a complete description of queen-rearing, but shall dwell upon some features that I believe should be emphasized. For the one who rears over 100 queens per year, I believe, when all things are considered, that the grafting method is to be preferred.

As the honey flow is coming on and the stronger colonies begin to show signs of swarming, and the combs begin to drip nectar when shaken, it is time to get busy at queen-rearing. The method of getting the grafted cells accepted by the use of the queenless and broodless colony is good, but the swarm box has many advantages, provided you have a good cellar where the bees may be kept warm on cool nights and be kept cool on hot days. As most are familiar with the process of grafting, I shall not dwell on that further than to state that I believe much better results will be obtained by the use of royal jelly. Some claim that they get good results without using it, but I never could. The jelly should be diluted with clear water till it is as thin as royal jelly surrounding a larva that is just hatched. J. W. George of El Centro, Calif., informed us that royal jelly can be bottled and kept from one season to the next. I tried this the last season and find it one of the most convenient little tricks of the trade. A shallow screw-cap jar with a wide mouth is suitable for storing this jelly. If you have no such jar, you might be able to find one if you will rummage around in your wife's manicuring outfit. The ladies usually have these little porcelain jars, filled with pink salve or freckle dope or something. You can clean this out and put the contents into a tin can and present it to your wife with your compliments and make off with the little jar. Sterilize it thoroly by boiling, for the bees seem to object to the smell that comes with it. This jar, together with a jelly spoon, may be carried in the pocket, and when you are working among your bees and find any royal jelly you just pull this jar out of your pocket and can it right there. From a colony that is preparing to swarm you can get enough to graft several hundred cells. For filling the swarm box a tin funnel is convenient. I prefer a swarm box large enough to hold five frames, but only two frames are used. These are placed one at each side, leaving the space in the center to accommodate three grafted cell bars. In filling the swarm box, it is well to place it on scales so that the weight of the bees may be accurately known. Between four and five pounds of bees should be used. These must be taken from a strong colony in order that the brood left in the hive will not be neglected. The frame containing the queen is set at the side of the hive, and after the swarm box is filled she is placed back in her hive again. This box is filled just before noon and the cells grafted about four p. m. Usually, the bees confined in a swarm box will not take sugar syrup, but if honey diluted with one-fourth water is given they take this readily. This is given in a Mason jar with perforated cap and is placed in the hole that was used for filling the box with bees. A swarm box prepared in this manner will accommodate 60 cells. It has not been an uncommon occurence to have every cell accepted and every one finished into long perfect cells. As a rule, however, we get about 55 accepted and, when given to a finishing colony, they usually find one or two more that do not suit them and they tear them down. The bees should be left in the swarm box till noon the next day, or they may be released any time during the afternoon of the following day. In the cellar or basement the bees should be kept in the dark. I had a basement made of concrete, and we stacked up extracting supers to the ceiling to keep out the light. A room was made in this way with the opening facing the wall so that no direct rays of light could enter. In this ''dungeon'' the bees remained quiet and kept right at the task in hand. The best way to get cells completed is over a queen-excluder in a two-story hive, with a good laying queen in the lower hive. But in order to get the best results, this hive must be rousing strong. It is well to have both hive bodies **completely filled with brood.** Extracting-supers may be put on top of all. This will necessitate some lifting at times, but it is well worth it. One bar of from 15 to 20 cells is given to a colony to be finished. The cells should be left with this colony that finished them until the tenth day after they were grafted. They will then be ripe and will hatch some time late in the afternoon of the eleventh day. These cells should be handled very carefully on the tenth day or cells will fail to hatch or crippled queens will be the result. The colonies you wish to requeen should be made queenless at least 24 hours before giving them a cell, and, if any trouble is experienced from the bees tearing down the cells, they should be made queenless 48 hours. However, if the nectar is coming in and the weather is fine, 24 hours will be long enough. But I can almost hear this question asked, ''Why not use a cell-protector?'' Because if you wish to get the **best** results in rearing the **best** queens, you should not use them.

After conducting some experiments along that line, I believe that many do not realize that one of the cardinal points in rearing the best of queens is ''proper incubation.'' To secure perfect incubation of queen-cells the bees must have free access to the cells at all times. Cells will not hatch perfect queens at all times, if they are allowed to hatch in cages or cell-protectors, for the reason that the bees cannot cluster around the cells and keep the temperature just as it should be. Where the bees have the opportunity, they will closely cluster about the cell, and just before the queen is to hatch they will remove the wax, leaving the bare thin cocoon thru which the virgin queen may be seen moving about. The cell cannot have this care if placed in a cage or cell-protector. Again, it is of the utmost importance to have the virgin queen hatch among the bees, for a virgin that has just hatched is a very frail, weak affair and needs all the nursing and attention she can get if queens of the first quality are to be secured. The method just described, if properly carried out, eliminates all doubtful features. If it is desired to use nuclei, the same method is employed, except that the cell is given to the nucleus instead of to the full colony. This will necessitate introducing the laying queen to the colony, which is another story.

THE BIG NEED IN THE SPRING

An Abundance of Stores Means an Abundance of Workers

The importance of plenty of room for queens to lay, and especially the need of abundance of stores for the bees to turn into bees in the spring, is not fully realized by those who keep bees. For some years it has been my practice, when extracting in the fall, to save combs only partially filled and capped; and in the spring, after taking away the winter packing, to raise the brood-chamber and place a hive body containing these frames of honey under it. The abundance of room supplied held back swarming till the flow of honey from white clover, and the honey given stimulated the queens to lay to their utmost capacity.

In the fall of 1918, when packing my bees for winter, I gave six colonies each an extra brood-body containing ten of these partially filled combs of honey. When I took off the winter packing late last spring, I found one of these colonies with the upper brood-body well filled with brood, and six frames below with plenty of brood. This colony last year (1919), which one of my neighbors who has long kept bees said was one of the poorest seasons he had ever seen in Indiana, gave about 120 pounds of extracted honey.

If it requires a frame of honey to produce a frame of brood or bees, then hives with six frames of honey can not produce more than average colonies of bees; while 16 frames of honey, with the right queen, may give us 16 frames of brood or bees and a bumper crop of honey.

The abundance of honey, no doubt, is the leading factor in getting queens to lay in the lower brood-body in addition to filling the upper brood-body. May not capped honey in the lower brood-body also influence the queen to go below and lay?

In the poor year of 1919 my bees gave about 45 pounds per colony, with 61 per cent increase, which was as well as or better than last year. Our bees have greatly helped us to meet the H. C. L.

Brownstown, Ind. D. F. Rankin.

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DEFENDS THE TRAILER

Reasons Why Mr. Taylor Prefers the Trailer Rather Than the Truck

We were, I believe, the first to make use of a trailer in the bee-yard, at least I never heard of a trailer or saw one mentioned in any of the bee journals until we bought ours. It is a two-wheeled one and costs about $75.00. We run three outyards of about 500 colonies and use the Ford car only because it is the cheapest and lightest for getting over the hills to and from our yards. We use two cars, but have one on purpose to hitch the trailer to. We have an extracting outfit at each yard and when extracting take home a load each night to Paris where we store and insure until we ship. If we do not have a load to take home, we just draw a bolt and leave the trailer in the yard until we want it.

Some have said that a trailer is hard on the auto. I say that it all depends on who is at the wheel. We have been using ours with the same car for five summers and have never paid one dollar for expenses caused by the use of the trailer. By reckless driving one can use up a car in six months without a trailer, but by careful starting with a load and by avoiding ruts and bad places I cannot see that the trailer hurts the car at all. We can easily take 1,500 pounds on a load, but the driver should start off easily and keep his eye on the road ahead and go slowly over any bad places in the road. Where it is good and level we go 20 miles an hour with a load. For moving bees there is nothing better. We can take twenty 10-frame Langstroths to a load, and one can hardly feel any jar. Then it is so handy to take empty supers or crates or pails or any light material we may want from one yard to another. When not in use the car can be used for pleasure or running light to the yards where a truck would be too slow and clumsy.

The main objection to the truck is the high cost and the fact that it can be used only for hauling loads. It would be too clumsy and heavy to use daily going back and forth to the yards; and then the interest on the outlay, the wear and tear, the insurance and the storage (with us it would be stored about eleven months in the year), would amount to more than the hire of a truck for the two weeks that would be required for doing the heavy hauling. By making a long day we could draw home all the honey in a good year from any of our yards in two days, our farthest yard being nine miles from Paris where we store. This

A yard that Mr. Taylor's trailer serves.

applies only to beekeepers on a small scale, those having 500 colonies and under.

Where they have colonies by the thousand and are moving bees every few months to different locations to catch the flow, a truck or trucks might be better; but, in our locality and with the number of colonies we keep, I want you to understand in cold black ink that we have no use for a truck.

Paris, Canada. Alex Taylor.

SHORT CUTS IN REQUEENING

Annual Requeening and Packing Cases Used as Protection for Mating Boxes

Beekeepers who operate several hundred colonies of bees partly in outyards, with little or no help, can appreciate the necessity of eliminating any manipulations in requeening that are not strictly necessary.

I have a fairly uniform strain of bees, with all the queens Italian, but an average of 10 per cent mismated. In requeening my practice the past two seasons has been as follows:

About a week before the end of the main honey flow I kill all queens that are mismated and all queens that have not produced an average crop and all two-year-old queens, altho the latter are all good queens except for age. All the colonies whose queens are thus killed are permitted to raise queen-cells which are destroyed after eight or nine days. At the same time I go to my colonies that had good two-year-old queens and mark all frames with queen-cells. One marked frame is left in each hive; the rest with bees, brood, and queen-cells are used for colonies needing new queens. At the end of four weeks all colonies are looked into to see if there is a young queen. If she is present she should be old enough to have been laying eggs for a week. Consequently, it is only necessary to find eggs or sealed brood, and therefore a whole yard may be examined in a short time.

The first year this plan was tried in my apiaries, I found 22 per cent of the queens lost; so this season, I made 30 extra two-frame nuclei for every 100 colonies requeened. These two-frame nuclei were made by taking one frame of honey and one frame of bees with the brood and one or more good queen-cells and placing in each of the nucleus hives. The entrance, a ½-inch auger hole, was closed with green leaves tight enough to last two or three days before it would be dried out sufficiently for the bees to eat their way thru if I did not get time to open it. Of course, the nuclei must be protected from extreme heat and cold.

In due time there ought to be at least 20 laying queens out of the 30 extra nuclei. These are used and introduced into the colonies that are queenless. But because these colonies have been queenless a long time and all the bees are old, it is a waste of time trying to introduce any queen to them as they are. Therefore, after having examined a whole yard and having made a record of all the colonies that are queenless, all such colonies are given three or preferably four frames of brood in all stages from other colonies and again allowed to build cells from the brood given them; and after eight or nine days enough laying queens from the nuclei are caged in Miller cages and taken to the queenless colonies and introduced in the usual way, after having destroyed all the cells these colonies may have built on the three or four combs given. These cells are destroyed quickly and thoroly by shaking the bees off the combs to make certain that no cells are missed. The colonies are now in condition to accept the queens, especially if four frames of bees and brood have been used so that plenty of young bees have hatched. If only one or two frames of brood are used, it seems there is too large a proportion of old bees, and in many such cases the bees will not accept the queen, especially if no honey is coming in.

This yard in 1915-16 contained 50 colonies in modified Long Idea hives, with supers, and packed all the year round as shown in the back center of picture. As a result of this experiment, Mr. Hassinger has all his bees in the modified Long Idea hives today.

There are only two examinations necessary for all colonies that were average producers and that had Italian bees. First, to find the queen and kill her. Second, examine a month later to find eggs or brood. The colonies that had inferior or mismated queens would require three examinations. The additional examination is to destroy all their queen-cells and give a frame with cells from a better colony. All colonies found to be queenless will require six examinations as the whole process must be repeated.

Four or five of the colonies may be found with laying workers. All the combs that have laying-worker eggs or brood are removed with the bees into a super or hive

FROM THE FIELD OF EXPERIENCE

body and set above a queen-excluder, over a good strong colony with a laying queen. In place of the laying-worker brood-combs there are given at least four or five combs of brood, larvæ, and eggs, from normal colonies, the queenless colonies being allowed to build cells which are destroyed nine days later when a laying queen is introduced.

In looking thru a hive to find the queen I have been most successful by first removing two frames from the center of the hive and leaving them outside while examining the balance of the frames with this large gap in between. This works especially well with hives like the Long Idea and with queens that are not inclined to leave the brood while the combs are being examined. Those queens that are inclined to leave the brood when the combs are examined may usually be headed off by removing the two frames of brood from each end of the brood-nest (not the hive), then looking over the combs from each end of the brood-nest and working toward the center.

My winter cases are used to house my two-frame nuclei. A half of a box is made, having a removable cover and lacking one side, to hold two frames with the necessary bee-spaces but allowing one inch below the frames to give room for any queen-cells that may stick out below the frames. Such a half of a box is nailed on to the inside wall of the winter cases and a half-inch hole bored thru the case wall and a small entrance board nailed on the outside bottom of the hole. Sacks of packing are placed next to the nucleus for protection. When the nuclei are no longer needed the half boxes are removed and the hole in the winter case well closed up for the winter.

With this system there are no colonies to watch and feed daily; no larvæ to transfer; no loose cells to handle; no cells exposed to the weather; no cells to cage; also, all cells are built during a honey flow.

You may call this a lazy man's system if you wish. At this season of the year my time is too valuable to do any unnecessary fussing, the value of which is doubtful. To me this is a valuable short cut in case one has no foul brood but a good strain of bees to begin with, and practices annual requeening with all but the best colonies.

Greenville, Wis. Edw. Hassinger, Jr.

Comments on Hassinger's Method.

[In this article Mr. Hassinger has shown some short cuts in requeening that are well worth considering. The weeding out each season of all but the best queens is in itself a long stride towards successful honey-production, and the plan of utilizing the winter cases and packing in making up mating boxes will appeal to those who realize the importance of keeping the queen-cells warm at hatching time; but I would like to caution beginners that to have 50 per cent or more of the colonies queenless for a period of three to four weeks would be a heavy drain on the yards, and one which the beekeeper could ill afford in case he has a fall flow in his locality. In Mr. Hassinger's location, we are told, the fall flow only serves as a stimulation; so the loss of bees that would have hatched from eggs that might have been laid during these few weeks, would, in his case, be of little value. In those places where one can count on a fall flow, however, I believe that those colonies that are to furnish the cells for requeening could be made queenless eight days in advance of the others. This would shorten the queenless period 30 per cent for those colonies whose queens were killed on account of their being of an inferior quality. Mr. Hassinger says, however, that if he were to kill the queens in the other colonies and at the same time give them a frame with unprotected cells, 50 per cent of his colonies would destroy all such cells and raise cells from their own brood. His experience does not agree with mine.

In regard to introducing queens to those colonies that did not accept the first queen, I believe that if they were good Italian colonies, and sealed brood were given them, they would be in as good condition for introducing queens before allowing them to build cells as they would after, but with some hybrids this would not be true.

This article brings up the question of using natural cells built under a queenless impulse. It is well known that colonies which have been made queenless, in their haste to improve the time in which queen-cells can be started, often start some of their cells with larvæ two or three days old, this being fully half of the feeding period of the larvæ. Queens reared in this way could not be expected to equal those which have been fed as queens for the entire time. Yet these cells, started from two- or three-day-old larvæ having 30 or 40 hours start of the others, are the first to hatch. And since the first queen out destroys all the others, the queen remaining in the hive is likely to be lacking in quality. Mr. Hassinger thinks such a queen would be just as prolific as one raised from the egg, tho she might not be prolific for as long a time. Now I question not only the prolificness, but also the entire quality of the queen. But, since Mr. Hassinger admits the queen may be deficient in length of prolificness, I feel justified in concluding that her other qualities will be likewise deficient. I think the practice of using natural cells built under a queenless impulse should be discouraged, unless they are built in colonies whose queen-cells have all been destroyed seven or eight days after they were made queenless and the bees thus compelled to start queen-cells on the given frames which contain eggs only or just hatched larvæ.—Mell Pritchard.]

AN HOUR WITH LUTHER BURBANK

Stancy Puerden

THIS winter when we were making fascinating plans for our western trip I said to the man to whom I confide most of my ambitions, ‘‘I am going to write to father (A. I. Root) and see if he can get us permission to visit Luther Burbank's place.’’ I did not expect to meet Mr. Burbank himself, but thought he might permit a man to show us around. Nothing more was said at the time, but in the course of a couple of weeks the aforementioned man brought me a most cordial invitation from Luther Burbank himself who wrote, ‘‘Altho my time is priceless beyond any possible expression and we turn off some thousands of people each year who desire to see me, yet if you come I shall make every possible effort to see you.’’ Mr. Puerden had written direct to Mr. Burbank with the above result. It is convenient for a nobody to have a father who numbers great men among his friends and a husband who knows how to obtain what his wife wants.

Mr. Burbank further said in his letter that every growing thing would have to be taken on faith, as they had had the coldest winter he had ever seen in that region since he went to California 43 years ago—that everything was about as dead as in Ohio.

LEAVING San Francisco early in the morning, we reached Santa Rosa, which lies about 60 miles to the north, a little before noon, and after lunching in a little restaurant the head of the family telephoned to the Burbank place. A courteous voice informed him we could see Mr. Burbank a very few minutes, this being his busiest season, and instructed him to call at the residence. We had no difficulty in finding the place, which lies at the edge of the town with a distant background of hills.

We came first to the residence, but not being sure it was the Burbank home went on to an office building on the opposite corner to make inquiries. I remained outside to enjoy the fragrance of a great magnolia tree in full bloom. A little beyond and back of the tree was a greenhouse, and while I stood there a man came around the corner of the greenhouse, carrying a large basket. He was dressed neatly, but no better than any workman would dress for garden work. When the others rejoined me I remarked, ‘‘I just saw a man who looked like Luther Burbank's pictures, but I don't suppose it could have been Mr. Burbank.’’

We then went back to the house where we were received by Mr. Burbank's secretary, the lady of the pleasant telephone voice, and asked to wait in the livingroom where we were presently joined by Mrs. Burbank. Both the secretary and Mrs. Burbank told us that Mr. Burbank was unusually busy and that our time with him would have to be very limited indeed. In a very few minutes Mr. Burbank came in with the kindest and pleasantest smile and a cordial handshake for each one. And he was the man I had seen coming around the corner of the greenhouse, carrying the large basket and dressed as an ordinary workman.

I am going to confide to you that every one of A. I. Root's children has remonstrated with him separately and collectively and vigorously over his unconventional way of dressing. We have pointed out to him that his neighbors would not respect him if he went about in such shabby clothing. Now why do you suppose my heart instantly warmed to Mr. Burbank for wearing just the sort of clothes I have so disliked to see my father wear? And some way I am quite sure it would not disturb Mr. Burbank's serenity in the least to have King Albert of Belgium call and find him in just such clothing. Maybe he did.

MR. BURBANK at once led us out of doors and across the street to his experimental grounds. He said, ‘‘How I regret that you could not make your visit in June when everything around here is a dream of beauty.’’ He had no monopoly on the regretting. If I am ever in that vicinity in June, I shall slip away to Santa Rosa and prowl around the experimental grounds and peep over the fence and doubtless be tempted to climb it, for I shall never have the nerve to take up any of Mr. Burbank's time again.

He led us past ‘‘no admission’’ signs, by a bed of luxuriant foxgloves which were still dormant for the winter, and stopped by a hybrid black walnut tree growing close to the wall of a storage house. He asked us to guess how old it was. Our sixteen-year old son, 5 ft., 6 in. tall, by putting his arms around the trunk could just touch the tips of his fingers together, at shoulder height, and it was tall in proportion. I believe Mr. Puerden guessed 50 to 100 years. Mr. Burbank said it was just four years old.

Since then I have wondered at my stupidity that I did not ask if it could be grown in a cold climate and whether it will be practicable for ordinary people to try to raise them. I find no mention of walnut trees in Mr. Burbank's 1920 catalogs. Wouldn't it be heavenly if one could plant a few walnuts in his back yard and have a walnut grove in four years' time? It takes such an age for a beautiful tree to grow to maturity, and it is so fatally easy for brainless people to cut it down.

The soil in which the wonderful walnut

tree was growing was the hardest clay; indeed, most of the soil on the place seemed similar to the hard clay which reduces one to blisters and desperation in our Ohio garden.

From the walnut tree we went on to a plantation of spineless cacti. They stand up just as stiffly as their desert relatives, but the thorns or spines are absent from the leaves. Mr. Burbank, selecting and peeling some of the fruit, explained that altho green and not at its best he wished us to taste it. The odd-looking fruit looked no more tempting than a cucumber, but to our surprise it was juicy, sweet, and of a flavor reminiscent of muskmelon, and yet, not quite that either. It was rather a delicate combination of fruit flavors. It was delicious. And in addition to the fine flavor it has the quality of being anti-acid, making it a valuable food for those suffering from acidosis. Mr. Burbank cited instances where his friends had used it to correct an acid condition with quick results.

The plant itself is used as a cattle feed. Think of producing 501 tons to the acre. This has been done, and I believe it has proved to be an exceptionally valuable feed

When we went thru the packing rooms, where seed is prepared for mailing, and the office, I noticed Mr. Burbank's manner to his employees and theirs to him. He seemed to have a pleasant word or smile for everyone he passed from a small boy up, and they responded in the same way.

We saw stacks of 1920 catalogs ready for mailing, and received copies of them. While the catalogs are not large and a complete collection of seeds is not offered, as Mr. Burbank points out, no one person can grow all the various seeds which are generally catalogued. He offers the newest and best flowers, fruits, grains, and vegetables, all produced under his personal supervision.

When we went outside again we stood under the branches of a Cedar of Lebanon, the very kind which is mentioned in the Bible. The long, drooping branches, the tips of which swept the ground, made a delightful, shady bower, just the sort of place where small girls like to play with their dolls. Mr. Burbank told us it was always cool under those branches on the hottest midsummer day.

We passed a climbing rose with a trunk like a good-sized tree. We saw a nine-year-old sequoia (giant redwood), which bids fair to crowd the residence if it keeps on growing at the same rate. Behind the house was a woodpile, trimmings from fruit trees, which Mr. Burbank told us might be called a $100,000.00 woodpile, if one counted the cost of production.

About this time some mention was made of the Burbank potato. Mr. Burbank thereupon told us that if all the Burbank potatoes which were ever grown were loaded in cars it would make a train which would reach around the world.

When Mr. Burbank finally excused himself—mindful of what his secretary had said, we had tried to go once or twice before, but he would not permit it—he insisted that we go back to the livingroom and spend some time with his books, curios, and pictures, and said we should come back and shake hands with him before we left.

Certain features of that livingroom, a card receiver, signed photographs of famous men, etc., made me recall the old saying to the effect that if you do something better than anyone else has ever done it the world will wear a path to your door. Santa Rosa must be the converging point for paths from all over the world.

But the point of interest in the room was the 12 volumes, "Luther Burbank — His Methods and Discoveries; Their Practical Application." These are profusely and beautifully illustrated with color photographs, 1,260 large page photographs. Some day I hope to own a set of those books. If I were a young man with my living to make from the soil, I should feel that I could not afford to be without them, altho their price, delivered from Santa Rosa, is $60.00. I hope every agricultural college and every agricultural experiment station in the country has a set of them. It is a complete history of all that Luther Burbank has learned by 50 years of close work and experiment, told by himself, and it is said to be written in a form so simple that everyone can understand it.

He has also written a little book, "The Training of the Human Plant." This can be obtained from The Century Co. by mail for 65c. Mr. Burbank himself says that all he has ever done has been thru the control and manipulation of those two great forces in life, plant and human, heredity and environment.

Some may wonder why I have not taken more space to tell of Mr. Burbank's wonderful achievements. That was not the purpose of this little sketch at all. I have merely tried to share with my readers some of the pleasure of that hour in Santa Rosa, being careful not to exaggerate or make any mistakes.

After all, the most inspiring part of the experience was meeting the man himself. From what I had heard and read I had gained the impression that Luther Burbank was a recluse, interested in little beyond his plant creations. We found a man young and full of energy in spite of 70 busy years, enthusiastic about his work, with a gentle friendliness and charm which make his visitor feel at ease from the first. Tho it sounds paradoxical I believe it is love for humanity which compels him to deny himself to so many visitors. If he received some thirty a day, the average number who have been coming of late, he could not accomplish the great work which he is doing, work which is of inestimable benefit to the human race.

Beekeeping as a Side Line

Grace Allen

SEVERAL times it has looked as tho this spring would surely be a Terrible Warning. After some warm bright weather, brood-rearing getting nicely started, peach trees all a glowing pink, pears snowy white and plum petals drifting down the scented sun-lit air, most woeful things have happened; days of cold rainy weather, with frosty nights and danger of chilled brood; danger, too, of some colonies starving—colonies that were just on the ragged last edge of winter stores and beginning to depend on what they could gather; then sun and warmth and bees flying again; then a three-inch rain; more sun and flying bees; then on Easter Sunday a wind coming suddenly, swiftly, piercingly out of the west, and the mercury falling heavily from 74 to 28 degrees. We had no monopoly on that storm—it was widespread. It has been a narrow escape for many bees—and perhaps some didn't escape. Certainly there have been losses this winter and spring at one period or another by starvation. The only colony we lost went by that route in February. The winter itself having been very mild, most of the loss will have been from starvation—or queenlessness.

All our own queens came thru the winter, tho at an early examination I thought for a few minutes that we had one queenless colony. In one cell after another, the tiny eggs were thrown in on one another, in most unqueenly fashion, looking for all the world as tho they had been carelessly tossed in—some on the bottom of the cells, some on the sides, some on one another, some on unsuspecting little larvæ. ''Laying workers,'' I moaned, yet withdrawing the accusation almost as soon as made, to change it to a question. For in contrast to the scattering here and yon over the comb usually indulged in by laying workers, this brood space was properly compact, and the part that was sealed was flat like any normal worker brood. Even while I puzzled over the matter, right across the comb the queen came walking, as tho to reassure me. ''Very well,'' I told her, ''I see you are here. But why do you treat your eggs this way?'' The next examination showed nothing unusual. She had corrected her disorderly habits.

There was another colony, however, that surely displayed a failing queen. She was not only a laggard in laying, but the sealed brood lay largely in the humpy, bumpy, lumpy uneveness of worker-cells built up to accommodate drone brood. This queen was at the State Fair last fall for a week, with her nucleus of three-band blue-ribbon Italians—how are the mighty fallen! Probably, tho, that proud, uncomfortable week didn't do her any good.

We wintered almost entirely in story-and-a-half hives, and brood-rearing usually, tho by no means always, begins in the upper story. Several queens at the time of the first general examination, March 27-29, had only two, three, or four shallow combs of brood. In other colonies the brood ran into four or five combs in each chamber, one colony having reached the proud distinction of eight full-depth combs pretty well filled. That was the colony where, looking first into the shallow, I found nothing but honey, eight of the little combs being still sealed solid. Then down below, the hive was being filled with brood. A fine colony, that, to develop into a surplus-producer, if given ample room — into an early swarmer, if unwatched.

While we were looking thru one colony during that first examination, as Mr. Allen drew out a comb from the opposite side of the hive, my breath suddenly caught. I had had a swift glimpse of many sunken, perforated cells. They were not, however, cells of brood, but of honey. That is, they had contained honey; but now, tho part of the capping, having been merely punctured, still remained in place, the honey had been drained out and the cells were dry and clean inside.

> " There was a Boy; ye knew him well, ye Cliffs
> And islands of Winander! "

So began Wordsworth a certain narrative. And so I begin—there is a pair; ye know them both, ye sideline-reader-folk of Gleanings. They are—of course—sideline beekeepers. Until two years ago their bees were all in their own backyard, on their own green grass, under their own peach trees. They read and talked among them and walked and sat among them. There they hung their hammock and set their wicker rocking chairs; there, invariably, they took their summer guests. But because the man worked in an office five and a half days in the week, often they worked among their bees on Saturday afternoons when their neighbors to the west chose to gather on the shady side of their house, close—oh, most unfortunately close, to the open beehives. The results depended upon conditions. But quite too often some nice friendly neighbor would be seen running wildly away, head ducked, arms flapping, and general signs of distress evident. Because they never complained, the sideline pair felt particularly uncomfortable. ''We just can't increase much more,'' the man declared. ''Evidently not,'' was the sighed admission. ''Anyway, this isn't such a very good location,'' he comforted. ''It certainly isn't,'' she agreed. ''We might move the bees,'' he hazarded. ''Not all of them,'' she protested.

About that time a certain widow, having had a few bees left her which she was not able to look after, said, ''Bring your bees out here.'' There were fruit trees in bloom, locust to come and fields that promised clover. ''We wish we had some way to move them,'' they hinted delicately. ''I have an old horse and a small covered wagon,'' said the widow, ''would they help?'' ''They would be the very thing!'' cried the pair at once. For they liked—oh, very much they liked doing things different from what they had ever done before and different from what their friends and neighbors were constantly doing. And in this old horse and gypsy-like wagon they saw a gay shatterer of routine. They were in no hurry—there was no compulsion about moving the bees, so they could take all summer, if they chose. ''We'll move them off and on,'' they decided. So off and on during that wonder spring and its full-throated summer and its rich, ripe autumn, whenever the desire smote them, they moved out a few hives of bees. Because the man was busy all day, they moved them mostly in the evening. So the desire smote them oftenest when the moon promised to shower their way with silver light. Then out from the maple and plum trees they would drive into the gathering dusk, both perched on the seat of the queer little wagon, with four to eight hives tucked snugly in the rear. And out into the country they would jog. Sometimes they talked gaily, sometimes not at all; sometimes they ate sandwiches and little cakes, apples and oranges and fat ripe bananas; and always the man had hidden in some pocket chocolate bars or peanut brittle or chewy caramels. Once they got lost on the country roads leading across from pike to pike, and had finally to pull up so steep and straight a hill that the top seemed quite too much to hope the poor old horse to attain. Once when the night was warm they stopped at a country store for ice-cream cones—indisputable signs of the democratic spirit! (But there was such privacy in the covered wagon and the night!) Once they went in the morning, early, before anyone in their neighborhood was astir. ''All in the dew and the dawn we'll go,'' they had planned rapturously the evening before. It rained that morning instead, but out they drove into it, singing; and it was one of the best of all those hive-laden drives, for it was summertime, and what could be more refreshing in hot summer than a cool slow drive thru a soft morning rain?

Always there was a mad dash at the other end to get started home. The old horse and the gypsy wagon were left out there, where they belonged, and down nearly half a mile of country road the pair swiftly sprinted to catch the very last streetcar going back into town on that line. It was always a breathless affair, and always a success. The last dash was the most exciting of all, and most ludicrous. The widow had sold her horse; not the wagon. So that last trip was made with a horse from a country stable at the end of the carline. Poor beastie—maybe he hadn't always been so slow! The hives were finally unloaded, the horse unhitched and urged off down the road. He saw no reason to hurry—he didn't know the meaning of the word. But that midnight car, the last car of all—it had to be met. So the man pulled while the woman switched. At last he broke into a trot, and man and beast went rollicking off down the road with the woman trailing behind, fairly reeling with laughter and haste and weariness. She and the streetcar reached the spot at the same critical minute, to find the distracted man storming the stable crying, ''Anybody here to take this horse?''

At last these unparalleled delights came to an end, for with the close of the season all the bees they were willing to spare from their own vine and fig tree had been moved. There were forty-odd hives in the new yard. Winter settled upon them; then another spring broke, another summer blossomed, the honey was harvested, autumn dropped quietly down, and lo, the widow said they would have to take the bees away.

This, then, they did in this spring of 1920; not, however, after the long-drawn-out off-and-on-ness of the first moving. There was nothing old-fashioned about this, nothing leisurely, nothing at all of dawn or dewy eve. It was all highly efficient, all modernized and motorized. One March day a tiny cavalcade could have been seen wending its way along the pikes and across the lanes between, two trucks, each piled high with bees and supplies, and the pair following in a Ford car with a miscellaneous assortment of odds and ends. Another truckload of supers and one of winter cases and tables and miscellanies, completed the job promptly and efficiently. Everything moved like clockwork—except when one hive leaked bees as it was being loaded, and one of the darkey drivers disappeared. ''Where are you, Shanghai?'' called the man, after veiling the other driver. ''Heah I is,'' came the reply. Sure enough, there he was —flat on the ground under the other truck! ''Why, Shanghai,'' protested the man, amused, ''you aren't scared, are you?'' ''Naw suh,'' the driver grinned good-naturedly, ''I aint skeert, but I'se a little skittish!''

* * *

''Remember what David Harum said about dogs?'' a witty man asked me lately. ''No,'' I admitted. ''He said,'' the man reminded me, ''that a certain number of fleas were good for a dog, they kept him from brooding over being a dog. And don't you suppose,'' he went on, ''that a certain amount of foul brood is good for a beekeeper? It keeps him from brooding over being a beekeeper!'' I wonder.

FROM NORTH, EAST, WEST AND SOUTH

In Northern California.—The California Honey Producers' Co-operative Exchange held its second annual meeting in Los Angeles on March 29, thus bringing to a close the first year of its existence. There was a full membership present, and much important business was discussed and enacted. The men chosen as directors for the coming year appear to have given general satisfaction thruout the State. Northern California was represented by Willis Lynch of Salida and W. A. Tricky of Bishop. Mr. Lynch was again elected president of the Exchange, and Chas. C. Orr of Ojai is once more our secretary. There is no gainsaying the fact that our Exchange is not only a going institution, but is also a very potent factor in the United States honey market today. The year 1919 has been the only year in the history of our industry in which the beekeepers of the State have got the better of the speculative honey-buyer. The policy of the board of directors for the coming season is to curtail expenses as much as possible and to market as much honey as possible outside of wholesale channels. It might also be mentioned that the Exchange at the present time does not think it advisable to join a federated organization of honey-producers' associations for the purpose of marketing honey collectively.

California beekeepers, please take notice. Here comes Tarlton Rayment from North Gippsland, Australia, and tells us in the Australasian Beekeeper for February that he once produced from a yard of nearly 200 eight-frame colonies five and one-half cases (660 pounds) of honey per colony, and he adds, ''We cannot believe that any other pattern of hive could have excelled the yield.'' (Mr. Bixby will be pleased to hear that bees in eight-frame hives are still able to hold their own.) Old timers will probably have to go back to the year 1884 in order to recall an average production per colony amounting to 660 pounds, and the writer very much doubts if this record has ever been equaled in California. Mr. Whitacre of Piru, Ventura County, once told the writer that he got an average of 428 pounds per colony from about 150 colonies in 1884. In the San Joaquin Valley there is a case on record of an average of 378 pounds per colony, and in another instance, 800 colonies, spring count and located in several yards, produced an average of 313 pounds per colony. M. C. Richter.

Modesto, Calif.

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In Southern California.—April 4 finds southern California beekeepers who have their bees near the orange groves, at their very busiest. It has taken constant attention to keep colonies from swarming. For some time before the regular flow started, just enough nectar was brought in to stimulate brood-rearing and encourage the building of swarm cells. To have a colony swarm just at this time very materially impairs its usefulness for some time or until the orange flow is well past. For the past three days the orange flow has been all that one could ask for. Strong colonies with a good supply of bees of a honey-gathering age have filled the supers very rapidly. The nectar is very thin, which is a good sign, and with favorable weather conditions this good flow should continue for several weeks.

Brighter and brighter grow the prospects. Remarkable rains for the time of the year fell during the latter part of February and all thru March. With mild spring weather, we should get good results for our labor. It is to be regretted that so many apiaries are below normal in strength and will be late in being ready for the gathering of surplus honey. The cool nights are the great drawback at present; and the days being not very warm, nectar secretion is not so good as it should be. The black sage has been blooming rather unevenly—in some sections quite abundantly. However, but little honey has been stored from this source. Of course, with plenty of moisture, new shoots will continue to grow and new blossoms continue to appear. But, generally speaking, a plant secretes honey best about the time of full bloom, and the blossoms coming later are not of so much importance. The white sage is making a fine growth, but June is the month when it should be at its best. The purple sage also is looking well, but the results from it will come later on. I may sometime attempt to give the reader a clearer conception of the various sages that help to make a reputation for the California sage honey.

As the season advances, it becomes more and more apparent that the loss from disease, starvation, etc., among bees in southern California is much greater than at first supposed. The loss during the last three years has been stupendous, some county inspectors reporting nearly 40 per cent loss. It is a common thing to have some of the large producers of extracted honey say, ''I have to keep buying bees to keep my number good.'' I find it necessary to make artificial increase to keep the numbers anywhere near normal from year to year. When we have good honey seasons, it is easy to draw a nucleus from a strong colony during swarming time and have it build up to a strong colony in time to store considerable surplus honey. But for several years it has been necessary to supply most of these nuclei with stores, either by giving them combs of honey or by feeding sugar syrup. Either method is expensive at present prices.

The California State Beekeepers' Co-operative Exchange met in annual session in Los Angeles on March 29. Two delegates

FROM NORTH, EAST, WEST AND SOUTH

from each of the ten local exchanges were present. Reports of business transacted during the first year's work were given and showed that about $750,000 worth of honey was sold by the Exchange. For one of our short-crop years, this is considered a good showing. A board of seven directors to serve for one year were elected as follows: Gunterman and Culver of Imperial County local, Calahan of San Diego County local, Horne of orange belt local, Trickey of Inyo County local, Lynch of Central Valley local, and Orr of South Coast local. This board will have the selection of a manager and the outlining of a policy for the coming year.

Supply houses report a very heavy demand for supplies of all kinds. There is apparently not so great a demand for one or two colonies as last year, but a much greater demand for small apiaries of from 25 to 100 colonies. Some sales of large apiaries have been made, but most beemen who have shown ability enough to accumulate an apiary of from 200 to 300 colonies hesitate to put a price on them. Therefore, very few are for sale at all. One man, whom I know, sold about 50 colonies for $600.00. The offer was too great to refuse and he could not resist the temptation. When he came to look around for bees to buy, he found that he could not replace his original holdings for the same money.

Corona, Calif. L. L. Andrews.

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In Iowa. The increased number of county associations will find their efforts unified thru the State Association. With such effort and support the State Association will be in a position to render more efficient service to the industry. In response to a recent appeal the number of individual beekeepers who have joined the State Association is very gratifying. The Association is for the beekeepers and by the beekeepers and represents their industry. Therefore their united support is needed to accomplish the most for the work.

With the increased interest in county organizations and the State associations it is only natural that the beekeepers of this State will be vitally interested in the American Honey Producers' League. This organization which was perfected at Buffalo in March, as described in these columns last month, has already the hearty endorsement of all of the nine progressive States. Full details of the League will be given to the beekeepers in the near future. The League represents the necessary co-ordinating force for individual State effort. The work of the League is already under way and the results will be of value to every beekeeper in every State.

It is to be hoped that satisfactory results will be obtained from the package bees and nuclei. Several tons of bees were shipped into this State this year. Hopes were big for results, and there should be no disappointment if the simple directions are followed. As yet, we have practically no exact knowledge on the merits of such bees, but the results which have been obtained by practical beekeepers seem to assure the value of this method of securing bees.

Included in the instruction in apiculture for the present term at the Iowa State College is a course given to girls. In taking the combined course, Home Economics-Agriculture, the girls are fitting themselves to meet better the problems of rural life today. Not all of those who are taking the apiculture are unfamiliar with bees and much interest is taken in the work.

Winter losses are reported to be heavier than was anticipated. This makes a sad story. When will the lesson be learned? Of the average reported annual loss of 12 per cent, as compiled by the United States Department of Agriculture, the beekeeping industry of Iowa suffers each and every year a loss of over $500,000. If a tax of 12 per cent was imposed on beekeepers, there would be no end to the comment; yet our winter loss comes each year, and now it is almost considered necessary. This spring we heard of very extraordinary losses. In one instance the owner expected to winter in a cellar, and in waiting for a last good flight day the bees were left outdoors all winter. In another instance insufficient protection was given for outdoor wintering which resulted in a loss of almost 50 per cent. To winter bees requires care and an investment. Too many are now trying to winter in poorly constructed cellars, rightfully called ''pits.'' Outdoor packing cases appear to be a very considerable expense, which is to be avoided if at all possible. The facts must be faced and met squarely; the issue cannot be dodged.

Ames, Iowa. F. B. Paddock.

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In Minnesota.— Pleasant weather prevailed during the latter part of March, and probably most of the bees were removed from their winter quarters in time to get a cleansing flight before the first day of April. On that day the weather changed, and for one week the thermometer registered around 20 to 25 degrees during the daytime, going down to about 10 degrees above each night. During two or three days and nights the wind blew very hard and considerable snow fell. This was the coldest week of April weather that has been known here in many years. At this writing we are not able to tell how much it has added to the winter loss of colonies, but probably, as a result, many weak colonies will not be able to survive.

The Hennepin County Beekeepers' Association held its annual spring ''experience meeting'' on April 7. Some of the members reported very heavy losses, even as large as 50 per cent; while others reported good results, the best record being less than two per cent loss. Why was this difference? The conclusions arrived at were that the main cause of loss was due to poor stores, and next in order was the lack of young bees in the fall, due to little or no fall flow.

The annual meeting of the Southern Minnesota and Western Wisconsin Beekeepers' Association was held at Winona, March 22 and 23. The meetings were well attended, and the discussions were of considerable interest. This is always true of the Winona meetings. Prof. G. C. Matthews of the Bee Culture Division of the University was present and gave a stimulating address on the things necessary for one to become a successful beekeeper. If this plain, practical, and comprehensive talk on the basic principles of beekeeping could be given in the various beekeeping sections of the State, I believe it would do much toward helping beekeepers to get more profit out of their bees. Mr. Matthews not only understands the theory of beekeeping, but he has also had practical experience in managing large apiaries.

The classes in bee culture at the University Farm are larger than ever before, and the interest is increasing. Just now vocational classes, which will continue till Sept. 1, are being started for disabled soldiers. Prof. Francis Jager, chief of the division, has completed his arrangements for rearing leather-colored Italian queens for Minnesota beekeepers. He will begin making deliveries July 1st and all orders will be filled in the order received. For information address the Bee Culture Division, University Farm, St. Paul.

Those interested in the annual State Fair exhibit will be pleased to know that C. B. Stravs has been reappointed as superintendent of the bee culture department. Bear in mind that it is not too early to begin to make plans for your exhibit.

Minneapolis, Minn. Chas. D. Blaker.

* * *

In Ontario. From reports to date, it appears that the wintering of the bees has been fairly good. Wherever stores were plenty and of good quality, and proper protection given to outdoor-wintered colonies, results have been very satisfactory and the loss small. A number report that natural stores have granulated solid in the combs, and the bees either starved outright or got uneasy, dysentery resulting. In our own case, so far as we have examined our apiaries, our main loss is from the above cause. Some 25 colonies in extra-large hives at one yard were very heavy last fall, and no sugar syrup was fed to them. Very few of these colonies amount to much today altho only three or four are dead outright at date (April 7). Bees had thoro flights on March 23 and 24, and some cellar-winterers put their bees out on those dates. On April 4 the weather turned cold and stormy and has been that way since; so perhaps bees might be better in the cellar yet.

Clover appears to be in fine condition, and with normal weather from now on prospects are good for a crop of honey.

From what I can learn there is not much old honey on hand in Canada, but what little there is moves very slowly, even if sugar and other commodities that are used in most families are steadily climbing in price. Buckwheat honey is especially weak, altho the crop was light last year.

Much has been said in reference to the new aluminum combs recently placed on the market, and most of the comments have been of a commendatory nature. Thru the courtesy of the manufacturers I had the use of two combs last season, and, while that number is not enough to work with to give accurate data, still I naturally formed an idea as to their future usefulness. The bees accepted the combs all right, and brood-rearing was carried on in a normal way, so far as I could judge. Possibly three-quarters of an inch of space near the end bars is not utilized, as the cells are not perfectly formed there owing to the manner of construction where the metal is attached to the end bars. But I was favorably impressed with their possibilities and so expressed myself more than once—the high price being the one thing against their general adoption. But a recent observation makes me wonder if, after all, metal has not some objections as compared with beeswax, so far as the bees are the judges. These two combs sent us were placed in an 8-frame Langstroth hive, and last fall the colony was fed solid with sugar syrup, seven combs being in the hive. By the way, this colony was on seven combs as near being solid with honey as possible when placed in the cellar about Nov. 20. The bottom-board was fast to the hive, and there was only a small bee-space under the frames. The entrance was only four inches in length and half an inch deep. The colony was purposely left this way to see if bees on solid combs of stores would die if they had no room to cluster under the combs. That such a colony would perish was positively stated by one of our best authorities some time ago, when the question of the so-called ''winter nests'' was being discussed. Needless to tell my readers that this colony wintered in perfect condition, my son saying it was the best among the 60 when we carried the bees out. I might say that often during the winter a contented cluster as big as an orange was noticed outside of the entrance of the hive.

But to get back to my story. By mere

chance the combs in the hive were arranged as follows: Four wax combs on the right side of the hive, two aluminum combs next, then one wax comb at the left side, and next a division-board. A few mornings ago when the weather was quite cold, I took a hasty look thru these cellar-wintered bees to see how well they were provided with stores. With the bees all clustered and with narrow top bars in the hives, a glance would, of course, show the sealed honey in the combs. All the colonies, whether weak or strong, had clusters in the usual shape, that is, near the front of the hive and extending across all or some of the combs according to the strength of the colony. But in not a single case did the bees actually reach the back end of the hive, altho a few very strong colonies had clusters across the full width of the hive and came very nearly to the back. The colony with aluminum combs was the last to be examined, and the first glance made me open my eyes wider than usual. This strong colony, instead of having a cluster across the full width of the hive, had the four wax combs on the left side of the hive so crowded with bees that they were tight against the quilt on top and were jammed up tight against the back end of the hive. Some bees of the cluster, if you call it by that name, were touching the first aluminum comb, but not a single bee was between the two aluminum combs nor were any on the wax comb to the extreme right of the hive. I do not wish to make any comment that would be unwarranted, and merely leave my readers to form their own conclusions. If the combs in the hive were all of aluminum construction, then the bees could not discriminate like that. Whether they would be at any disadvantage under those circumstances as compared with being on wax combs, it is not for me to conjecture, for frankly I do not know anything about it. But it appears to be certain that during cold weather bees, by choice, prefer the wax combs to the metal ones. I wish it understood that this is not given in any sense as a ''knock'' at this new comb, but I always think that a fair and honest expression of opinion is what we all desire.

Markham, Ont. J. L. Byer.

* * *

In Texas.—The weather conditions of the last month have been such that the bees have suffered severely. The warm weather of a month ago started brood-rearing, but the frosts that followed, cut off the nectar flow of the early spring flowers. The latter part of March was so cold and cloudy that all the remaining stores were exhausted. In many sections much feeding has been done. This cold period simply stopped plant growth. Many places report the plants a month late in blooming. Just as the spell came on suddenly, it ended as suddenly. The last week of March brought sunshine, and the bees are again building up nicely. The cold did not seem to hurt the plants, but only to hold them back, and in spite of the Easter blizzard the more noted honey plants give promise of an enormous honey crop.

The Texas Experiment Station thru the Division of Entomology has just issued Bulletin No. 255, ''Beekeeping for Beginners.'' In this bulletin an attempt was made to avoid the objections made to bulletins of similar nature. In reviewing these papers two classes were easily recognized: First, that which contained so little that the beginner got nothing, and second, where so much was given that the beginner was bewildered and did nothing. The present bulletin attempts to give the way to start and one year's program. This bulletin can be obtained upon application to the Experiment Station, Division of Entomology, College Station, Texas.

It is not to be wondered at that J. E. Crane was surprised at the statements relative to the honey exported from Texas as reported by M. C. Richter and myself on pages 92 and 94. Well, it all goes to show that you can prove several things by the same statistics. The 60 per cent which Mr. Richter mentions is 60 per cent of the honey which passes thru the dealers' hands. This amount is only a very small proportion of the total yield, as many counties producing much honey do not ship a single ounce. This honey is sold direct from the beekeeper to the consumer, and there is no way to get the statistics. Of the honey sold on open market, Bulletin 685 of the U. S. Department of Agriculture shows that in 1915, 35 per cent was sold in Texas, in 1916 55 per cent, in 1917 68 per cent. The Bureau of Markets estimates that in 1918 85 per cent was used at home, and three million dollars' worth of honey was purchased from outside sources. Honey produced outside of Texas is a very familiar sight in a Texas store.

It will be remembered that in connection with the Experimental Apiaries a queen yard was established near San Antonio. Queens are now available. The breeding queens now in use are Texas-raised and are picked for their ability to produce the workers that give the greatest yields of honey. Information as to obtaining these queens can be had from the Experiment Station, Division of Entomology, College Station, Texas.

C. S. Rude, with able assistants, is at work on the disease inspection of the State. Queen and combless-package men are receiving the first attention. All intending to ship bees out of the State are warned that their bees will be allowed to enter but few of the States without a permit.

College Station, Texas. H. B. Parks.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Too Many Drones a Detriment. I have read with much interest what is said in the January number of Gleanings in regard to the drone. In 1903, 17 years ago, I published a little booklet in which I said practically the same things. I knew at the time that my words would not then be considered as orthodox by the beekeepers generally, but "all things come to him who waits." I especially call attention to these lines:

"Everyone should know that the greatest expense in raising drones is while they are being fed in the larval state. After they have emerged from the cells it is a loss to destroy them, for they will more than pay for their board in the service they render in keeping up the bee heat in the hive. Their large lubberly bodies are very warm and they keep the brood warm, thus permitting the worker bees to go to the fields. Open a hive in cool weather and see the large congregation of drones (a solid sheet of them) gathered between the outside combs and the hive body. They are there for the purpose of keeping the brood-nest warm. If we have permitted the first cost of having them raised, we should not be guilty of incurring the second cost of killing them." T. K. Massie.

Hatcher, W. Va.

[From our experience it does not pay the honey-producer to keep an excess of drones even if they are already raised. But far more important than this is the fact that those drones should not be raised in the first place. Not only are such colonies more inclined to swarm, but also such a lot of drones are too expensive in their production and maintenance. It has been estimated that the cost of producing three drones would raise five workers. It is cheaper to raise the workers since they will not only keep the brood warm but nurse it and will also do other work about the hive and later will gather nectar. In a normal colony workers old enough to gather nectar do not stay at home caring for the brood. This duty is performed by the young bees. That very practical beekeeper, Alexander, once said, "The man who now allows his bees to rear thousands of useless drones is but one very short step in advance of the man who keeps his bees in box hives."—Editor.]

* * *

Observations on Queens and Swarming. Bees frequently swarm out at seasonable and unseasonable times, leaving behind scant preparations for another queen and under conditions which baffle the beekeeper for a logical explanation. Altho comments on this have been rife, but little light has been thrown on the mystery.

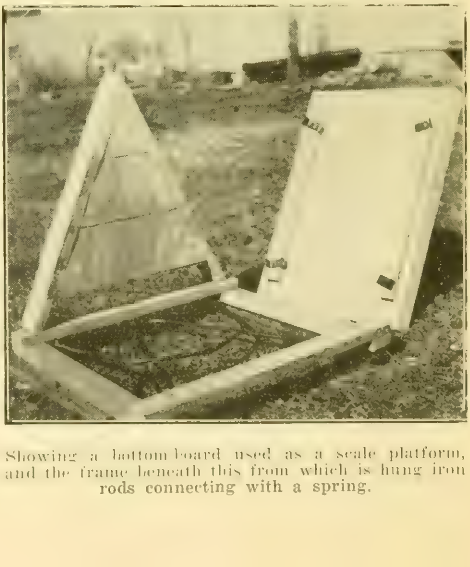
During the past summer, in an observatory hive, the activity of a queen was noted, whose actions indicated that an explanation of unseasonable swarms may have been found. This queen was restricted for room, and in wandering over the comb looking for new cells in which to lay she frequently neared the entrance of the hive. At such times the bees would be much interested in her, following her about and becoming very active when she came too near the entrance. Then a flutter of the wings would start among the bees nearest to her, who would run about on the combs. The wing fluttering would pass to every bee in the hive, much as grain waves in ripples cross a field in the wind. At such times the queen would also become excited and move rapidly, seemingly returning to the interior of the hive **only** because of the activity of the bees in her path near the entrance.

It appears that a queen might frequently lead off a swarm out of season, when she was restricted for room **within the cluster,** even when other room was available. **The queen was never seen to lay outside the cluster.** The anxiety of the bees as the queen neared the entrance was marked. Might she not at such times gain the entrance by mistake and lead off a swarm in the ensuing excitement?

Watertown, Wis. Kennith Hawkins.

* * *

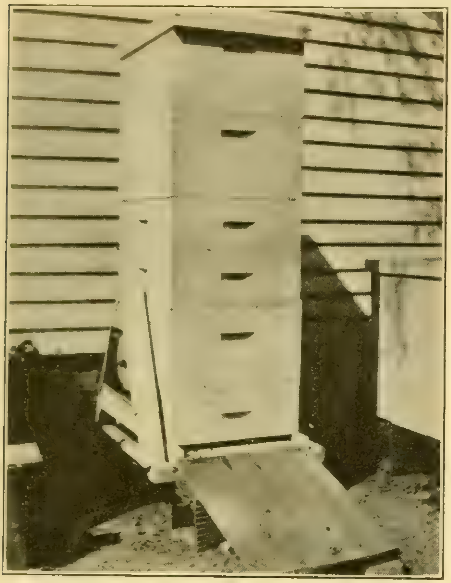
A Good Inexpensive Hive Scale. When mention was made of a hive scale it brought forth only a smile and sometimes a remark, "Why don't you trap-nest them? or are you going to leg-band each bee?" However, with such encouragement, I could not give up the idea of a hive scale. No other source of information seemed so reliable, helpful, constantly available, and



Showing a bottom-board used as a scale platform, and the frame beneath this from which is hung iron rods connecting with a spring.

HEADS OF GRAIN FROM DIFFERENT FIELDS

easy to secure as from the hive scale. When I tried to buy a scale which would be large enough, its cost, together with the necessary housing, was prohibitive. Moreover, it was inconvenient and required too much time to open the house to get the weight; so, "necessity being the mother of inventoin," I took a bottom-board of a hive, and used it for my scale platform, put a piece of iron with a sharp edge under each corner, made a frame to go under the platform from which I hung iron rods, attached the same as a common wagon scale, and connected it up with a small spring scale in a little A-shaped house at one side, as shown in the picture. Balancing from all four corners, this scale will give the correct weight, no matter on what part of the platform the weight may come, and will weigh anything from one pound up to six hundred pounds. The scale is protected from the weather by a galvanized iron covering, except the glass in front. The scale dial is divided into tenths of pounds instead of into ounces, and, as the platform balance is a ratio of 10 to 1, one pound on the platform registering one mark on the dial, and ten pounds on the platform registering one pound on the dial, it is very easy to read. It sits in a position near the walk where we pass many times during the day; so, with just a glance, we can take note of any slight change. The total cost of the hive scale, including the glass, was $3.45, other parts being taken from a scrap pile.



Mr. Strahan's scale hive, showing scale and its shelter on the left.

The hive scale tells when your honey flow commences, how heavy it is, when it breaks off, etc. It eliminates guesswork and saves needless manipulations. To me now it is not a question of whether we can afford a hive scale, but whether we can afford to be without it. C. F. Strahan.

Linwood, Neb.

* * *

An Experiment in Transferring. Several years ago I purchased an apiary containing a considerable number of old-style American hives and supers. There were, in all, about 90 hives and 175 supers, all with good, straight combs built from foundation. For a number of years I used this equipment, as it seemed too valuable to throw away. About a year ago, however, it was decided that we were losing honey by using these hives, and we determined to dispense with them by transferring all colonies to standard ten-frame hives. The work was done just before the opening of the clover flow. The new hives were prepared by using outer combs of sealed honey, kept over from the previous season in order to guard against starvation in case of bad weather, while the middle comb consisted of a frame of brood taken from some other colony, and the remainder of the hive body was filled with empty drawn combs. Beneath the hive body was placed a bee-escape board with tin removed, and above this a queen-excluder. The queen in the old hive was then found, and, after a considerable number of the bees were shaken into the new hive, she was placed on the frame of brood and a cover put on the hive. Next, the old hive was made tight by closing the entrance and all cracks and openings, and the new hive was then set on top. A new entrance was provided by shoving the hive forward about an inch on the escape-board, and the flight of the bees directed to this entrance by leaning a cover board in front. The time re-

Arrangement of new and old hive in Mr. Miller's plan of transferring. Notice cover board placed in front to direct flight of bees to the new entrance above.

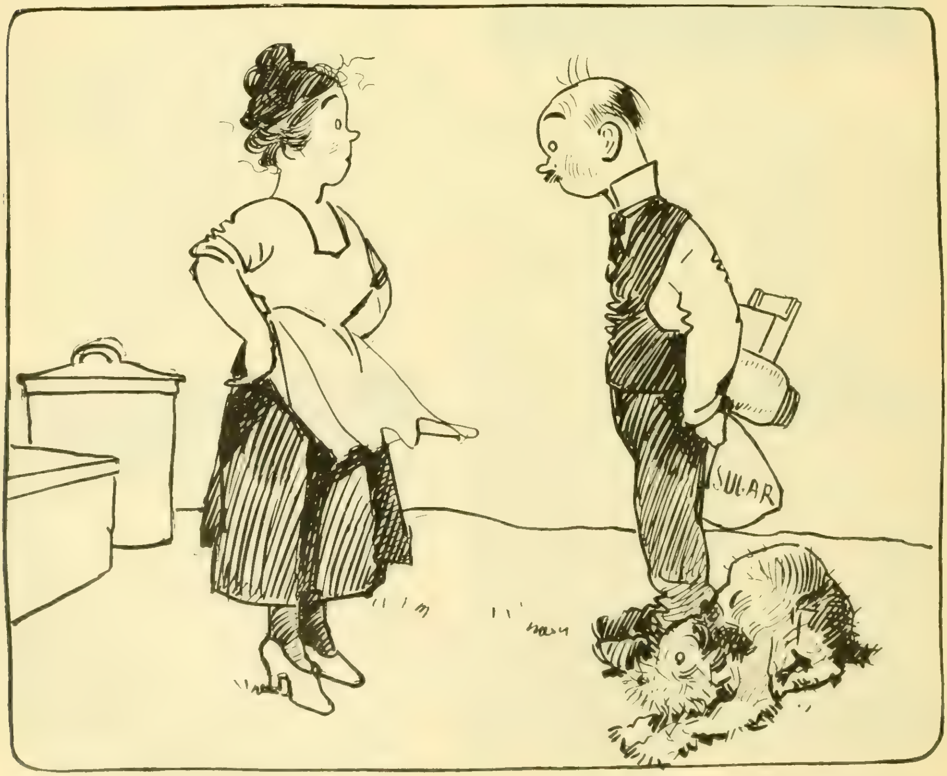
quired was from five to ten minutes for each colony.

Now as to results. Frequently it has been stated that, in this mode of transferring, the bees will emerge in three weeks, that all honey will have been removed by the bees, and that no queen-cells will be started in the old hive. As a matter of fact, in this experiment a part of the honey remained, and a considerable number of queen-cells were formed in the lower hives. In some of the colonies the bees succeeded in finding an opening, and, in all such, queen-cells were started; in the others only a part formed queen-cells. At the end of three weeks the old hives were taken away; but, in order to remove the honey remaining in the combs, they were placed in front of the hives at sundown and in the morning were found to be cleaned up.

All things considered, this mode of transferring probably requires less labor than any other, but let us not take it for granted that the bees will not start queen-cells and swarm. The safest way is to look thru every hive and remove all cells within 10 days; for, with the old queen clipped, the young queen will be very apt to squeeze thru the excluder or otherwise escape with a swarm. If the old queen is not clipped, swarming may occur either with the capping of queen-cells below or about the time the young queen emerges. E. S. Miller.

Valparaiso, Ind.

Representatives of the Honey Exchanges that met at Salt Lake City, Feb. 20-21 last. From left to right: E. W. Horn, C. E. Dibble, P. S. Farrell, B. F. Hastings, W. B. Parker, and Chas. Orr. See page 201, April Gleanings.



Ma says it beats all how fast her sugar seems to be going ever since we began having the first warm weather this spring.

GLEANED BY ASKING

Iona Fowls

QUESTIONS. — (1) Several times I have found what I think are dead bee larvæ on the alighting board of the hive. They are white and have the shape of a bee without wings. Is my brood diseased, or have I killed some brood in examining the hive? Could it possibly be enemy insects? (2) I am cutting out queen-cells to prevent swarming. When the day that I should cut the cells is a rainy day, what is the best thing to do? Is there any danger of a swarm on a rainy day? If not, what happens when the new queen hatches and the weather is rainy? (3) Is it necessary to shake all the bees off from the combs in looking for queen-cells? I can think of no other way to be sure there are no cells, and still this method seems to be a great disturbance to the bees for a weekly program. Stokely Wilson.

California.

Answers.—(1) Brood is sometimes carried out at the entrance because the colony is short of stores, because the brood becomes chilled, or else from the fact that wax moths have been at work ramifying the combs and injuring the young larvæ. In this case, we rather think the brood was chilled. (2) If the day on which you plan to cut out queen-cells proves to be a rainy day, it is best to put off this work until favorable weather. Should it continue rainy so long that a new queen hatches, there will, of course, be danger that, on the first sunshiny day, a swarm will issue. (3) If queen-cells are removed during pleasant warm weather, so many of the bees will be out of the hives that you will probably have little trouble in finding queen-cells; but, if for any reason, the hive is well crowded with bees, we suggest that you give the frames a slight shake, just enough to dislodge a few of the bees. You will soon accustom yourself to catching sight of the queen when there are quite a number of bees left on the frames. It is really too much of a disturbance to shake all the bees from all of the frames weekly.

Question.—I have 20 stands and some of them have quite a number of drone combs and consequently many drones. I note where someone speaks of cutting off the heads of the hatching drones, but will this prevent drone-rearing when the cells still remain? How can the drone-cells be gotten rid of? Oklahoma. Wm. Meyer.

Answer.—You are quite right. Cutting off the heads of the hatching drones is only a temporary expedient and does not do away with the real trouble—excessive drone-cells. It is altogether too wasteful to raise a large number of drones and then kill them. It is far better to cut out the large patches of drone-cells and replace with worker-cells. An excellent time for doing such work is during warm spring days when a little nectar is coming in. After removing the bees from the comb, take a sharp knife and cut out the patches of drone comb. Then using this frame of cut comb as a pattern, place it over the worker comb that is to be used for patches, and with the point of the knife mark out the shape of the holes on the lower worker comb. Then cut out the marked patches and insert in the holes which they fit. If they do not fit tight, it will be necessary to tie them in with string wrapped around the frame. As this work is done at a time when nectar is coming in, the bees will soon attach such pieces of comb and gnaw away the string.

Question.—Kindly give me your opinion on the situation shown in the cut.

7 Very weak 1918 Q.	8 Fair 1919 Q.	4 Good 1918 Q.	5 Good 1919 Q.
6 Fair 1918 Q.	3 Fair 1919 Q.	1 Weak 1919 Q.	2 Very weak 1919 Q

The condition of the hives is stated for Mar. 23. The years indicate the age of the queen. Nos. 4 and 5 being strong, I intend to place Nos. 1 and 2 on top of them (Alexander method). I will leave them till May 15 and then replace 1 and 2 on their own stands. After replacing 1 and 2, I intend to place 7 on 4, 8 on 5, 6 on 1, and 3 on 2 and leave till June 15. Is there any chance that these will balance up so as to give reasonable prospects for a crop? I do not wish to lose any more colonies than necessary. S. Manchester.

Ontario.

Answer.—If those colonies belonged to us, we would consider that we had five colonies, not eight. Colony 1 we would probably unite with 6, killing the queen of 6. Colonies 7 and 2, if really **very** weak we would probably not even attempt to save, certainly not, if affected with dysentery, for in that case instead of being a help they would be a detriment to whatever colony they were united with. In case we had but few colonies, however, and had them near enough home so that we could give them more attention, we would probably use the Alexander plan of building up, as you intend doing, only we would combine in a somewhat different way. That is, the weak and very weak should be given attention immediately. If any are left as they are from the first of April until May 15, they may be worthless by that time. In one hive body we would place 2 and 7, separating the two by means of a tight-fitting division-board. This body we would place over 5 and colony 1 we would place over colony 4. All of the colonies we would keep supplied with an abundance of stores thruout the spring. Colonies 6, 8, and 3 will soon be strong, and colonies 2 and 7 will build up to such strength that it will be necessary to separate them into different hive bodies, one being left on 4 and the other placed on whichever one of the colonies 6, 8, or 3 seems to be the strongest at that time.

When placing weak or very weak colonies above strong ones it is important that there be brood in the upper hive, and that the work be done without stirring up the bees. If done very carefully, the bees will not even know the change has taken place.

Question.—I would like to know whether brown sugar may be safely fed my bees, or whether cane syrup or corn syrup could be used, or whether we had better buy buckwheat honey from the East, provided it is from a healthy apiary.

Saskatchewan. John Hubbard.

Answer.—Any of these syrups may be used for feeding in the spring, if they do not contain too large an amount of glucose. If there is too much glucose, the bees are reluctant to accept such feed. The brown sugar would be all right in the spring, as also would be maple sugar or stale candy, such as may often be purchased at a low price. As long as the bees are able to have frequent cleansing flights, such feed will do them no harm. We strongly advise you not to use buckwheat honey purchased from a stranger, unless you are absolutely certain that the apiary from which the honey comes has been free of disease for several years. Otherwise you would be taking chances on foul brood.

Question.—I put one colony in a building close to an opening in the wall and they did finely, but were very cross. They would crawl and fly and when the opportunity offered they would sting. I got more stings from that one colony than from all the other 25 colonies. Did I just happen to get a cross colony or are they proved to be cross in a building? I am thinking of having several colonies inside a building, but if it makes them cross, they will make it pretty warm for me.

Montana. Hiram Miller.

Answer.—Evidently you happened to choose a particularly cross colony for placing in the building. It is generally claimed that bees in buildings are better-natured when being handled than are those outdoors, for as soon as they leave the hive their main idea is to get outdoors, rather than to sting the beekeeper.

Question.—What should be the proper space under the frames in winter and summer?

Ohio. Geo. H. Foote.

Answer.—The ordinary bottom-boards are made with a space ⅜ inch on one side and ⅞ inch on the other. The original intention was that the bottom-board should be used with the ⅞-inch space under the frames during the summer and the ⅜-inch space during the winter. It has been found, however, that many of the beekeepers prefer the ⅞-inch space thruout the year and so do not turn the bottom-boards.

Question.—I would like to ask how many bees Mr. Thompson puts in his mailing and introducing cages when preparing them for shipping queens? I think 12 is about right for the small Benton cage, but his cage has one more hole for bees than the small Benton cage. James McKee.

California.

Answer.—On inquiry we find that Mr. Thompson puts from eight to twelve bees in a small three-hole Benton cage, from 17 to 20 in the six-hole long-distance cage, and from 40 to 50 in the large export cage; so the cage with five holes would require from 12 to 15. In the spring and fall of the year the larger number should be used.

Question.—In Doolittle's book on queen-rearing, he gives an easy way of requeening by putting a frame of brood with a queen-cell in an upper story above a queen-excluder, the excluder being removed as soon as the queen hatches. It appears to me that this would be a very useful method, if it will work successfully. Please advise me.

Illinois. R. S. Barber.

Answer.—This plan will work under favorable conditions, but we would prefer to wait a day or two after the queen hatches before removing the excluder. The young queen being so much more active than the laying queen usually has little trouble in disposing of her rival. At swarming time, however, there is always a chance that a swarm may issue.

Question.—When in England I noticed all hives are about 12 inches from the ground. Is this advisable here or not? S. C. Wolcott.

Virginia.

Answer.—In the South where ants and other insects trouble the colonies, it is necessary to have the hives some distance from the ground. In other places it is not necessary to go to the trouble, and when working with colonies that are piled high with supers of honey, there is, of course, less lifting to do if the hives are near the ground.

Question.—I have ten hives of bees and I know very little about the bees and don't care to buy an extractor this year. I think I could get some chunk honey if I knew a little more about it. I would like to know if the frames need to be wired for chunk honey, and if an inch or two for a starter without wiring won't do just as well, and how chunk honey is put up and sold. Samuel M. Turner.

Florida.

Answer.—The frames need not be wired, nor are full sheets of foundation necessary. Simply starters will be sufficient. The honey is cut from the frames in chunks and placed in glass jars, tin pails, or cans, and the container then filled with liquid honey. It is much easier to produce chunk honey than regular comb honey, since even partly sealed sections may be used for chunk honey.

Question.—A man who was troubled with asthma quite badly told me that he took a little horseradish and honey for his trouble, and it was the only thing for him. This man is an auctioneer, crying sales every day at this time; so he has lots of use for a good voice. I would be very much pleased to know if anyone having asthma would be benefited by this simple remedy. F. A. Dahl.

South Dakota.

Answer.—As to whether honey and horseradish would offer any relief in case of asthma, we do not know. It is true that we have had a few reports of people with asthma being benefited by the use of honey; but, as you know, there is no remedy offered for any purpose whatsoever that does not apparently help some people. If we were troubled with this malady, however, we would certainly try your suggestion. We might also add that some have found a mixture of honey and cream beneficial.

BEES, MEN AND THINGS

(You may find it here)

WE also find that those using 8-frame hives are satisfied with their equipment, either for comb honey or extracted. This is the reason the writer differed with E. R. Root when he inferred the 8-frame hives were a back number. This is not saying that if these beekeepers had started with 10-frames they would have regretted it, but in order to thresh the idea out, the manufacturers were asked for information and their replies indicate the writer as being correct. One reports orders for 3,000 8-frame hives and none for 10-frame; another reports orders for but 150 10-frame hives for every 1,000 8-frame. As Hans says: 'Dey (the bees) like it better to go oop, dan to go vider,' and there may be something in it. Anyway, the demand for 8-frame hives goes merrily on and, after all, 'tis results that count, and these 8-framers are certainly getting them.''—E. J. Ladd, Multnomah County, Oregon.

''My bees were well covered in snow. Those deepest covered came out best.''—L. K. Feick, Cheboygan County, Mich.

''The pert, persistent, pernicious, perverting and pestiferous perennial dandelion has some real backers in the beekeepers of Minnesota. The first honey flow of the 1919 season in Minnesota was furnished by the dandelion, say the beekeepers, and was a life-saver. The flow from the dandelions started in May and was maintained all thru the month. Some good colonies, say apiarists, made a net gain of 25 pounds for a week with a maximum of nine pounds brought in during a single day, practically all of it from the lowly dandelion.''—University Farm, St. Paul, Minn.

''Bear in mind that it takes a frame of food to produce a frame of bees. Between now and the clover flow your bees must rear in the neighborhood of 15 frames of brood in order that you may have the kind of colony you want for gathering a bumper crop. It takes a lot of food to do this.''—B. F. Kindig of Mich. Agri. College.

''Prof. Jager, chief of the division of bee culture at the Minnesota University, says that the losses over the United States will run from 35 to 50 per cent and are around 40 per cent in Minnesota. Many small apiaries, he says, have been wiped out. Prices per colony have advanced to $15 and $20 each.''—University Farm Bulletin, St. Paul, Minn., Apr. 8.

''We still have our 1919 crop. Strange, that with consumers paying war prices for honey, there are scores of carloads of honey in the West, for which sale cannot be found, and this in face of the fact that for months at a time, in some States, almost no sugar was obtainable. There will never be the largest demand for honey, until it can be put in the hands of the average consumer, in packages cheap and neat, at a minimum advance over the cost of production, is the conclusion that we of the West are forced to entertain.''—E. F. Atwater, Ada County, Idaho.

''I have just read J. E. Crane's reference to the fertilization of alfalfa by the bees, page 87, February issue of Gleanings. I wish to say that we are located in a section that grows quite an acreage of red clover. Our bees pay very little attention to the first or hay crop, but work on the second or seed crop enough to increase the seed crop from an average of ¾ bushel per acre, before our coming here with the bees, to 1½ bushels per acre, as a number of our neighbors will testify. Our neighbors think very kindly of our bees.''—J. Ivan Banks, Dekalb County, Tenn.

''Alabama has a great variety of honey plants, of which sweet clover is our most important. I heard a Northern beekeeper say that there were more bees and queens sold from this section of Alabama than any other part of the United States. By this section is meant a strip of country 15 miles wide and 50 miles long, extending from Montgomery to Greenville. Our honey crop may not quite come up with some northern localities but our crops have reached up into the carloads.''—P. M. Williams, Lowndes County, Ala.

''I notice that H. V. Schoonover in the January issue just hates the Demuth method of packing and cannot bear to read anything about packing a-tall. Now Mr. Demuth, it looks to us like another of these cases of casting your pearls, and so forth and so on. But there are just lots of periodicals that do not talk packing all the time. Take for instance The Youth's Companion, The Mothers' Magazine, The Ladies' Home Journal, and just lots of them. But if a fellow wants to read a bee journal, he will read about packing more and more all the time, for the era of better beekeeping is at hand, and better beekeeping and winter packing are synonymous. Come again, Mr. Demuth.''—Jay Smith, Knox County, Indiana.

''There will be a large loss of bees in this vicinity—lack of fall stores and a very severe winter. Not a warm day between Nov. 25 and March 20 to give them a cleansing flight.''—C. H. Taber, Hampden County, Mass.

''I have wintered my bees in the attic over the dining room for the last three winters with perfect success. I set them so they can get out thru small holes thru the weather-boarding.''—Dr. L. E. Moore, Lake County, Ind.

TALKS TO BEGINNERS

By Iona Fowls

Last month we learned how to open the hive, and took our first hasty glimpse inside. This month we shall make a closer study of the inhabitants and contents of the hive. Following the directions already given, let us approach the hive from the side and carefully open it with as little jarring and as little smoking as possible.

On removing one of the frames and holding it vertically, as recommended in our last talk, we note hundreds of bees moving all about on the combs. Most of them are like those we have often seen in the fields at work on the blossoms. These are undeveloped females and are the honey-gatherers or workers. Here and there on the combs will be noticed thickset clumsy-looking bees somewhat larger than the workers. These are the males or drones. They are unable to sting or to gather honey, their only function being the fertilization of the queen. The one largest and longest bee in the hive is the queen. It is quite likely that among the thousands of bees the beginner may not see her the first few times he opens the hive, but having once observed her, will have less trouble in locating her a second time. Her regal bearing and the immediate retinue of worshipers, facing toward her and caressing her with their antennæ, or occasionally reaching out their tongues and feeding her, make the queen rather conspicuous to the practiced eye. This one bee to whom such deference is shown is the mother bee of the entire colony. As she proceeds over the combs she apparently chooses the cells that best suit her, and then hanging to the cell rim with her feet she inserts her abdomen in the cell and neatly glues to the cell's base a tiny elongated white egg of about the same diameter as a pin. This egg-laying is the life work of the queen.

Appearance of Brood.

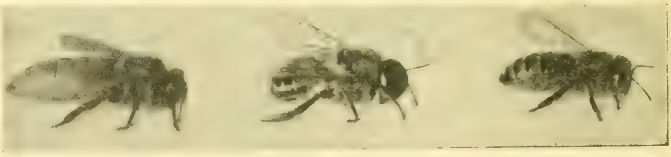
Near these cells of eggs will be seen cells containing what appear to be pearl-white grubs. These are larvæ in different stages of development. Also cells will be seen having light to dark-brown and slightly convex cappings made of wax and fibrous material. These cells contain the sealed brood, that is, larvæ that have spun their cocoons and passed into the pupa stage. Whether these cells are drone or worker may be determined by the size of the cells and the character of the cappings, the drone-cells being ¼ inch in diameter and the worker-cells 1/5 inch. The cappings of drone-cells are also more convex than those of worker-cells. That part of the combs in which brood is reared is called the brood-nest, and the entire chamber containing the brood is called the brood-chamber. In the spring when the queen begins laying, she generally starts the brood-nest near the center of the hive. As the oval of brood increases in size, similar ovals of brood appear on adjacent combs.

Pollen and Its Storage.

Here and there near the brood will be noticed uncapped cells containing a yellow, red, green, or dark-brown substance. This is beebread, a mixture of honey and pollen used especially for feeding young larvæ. The pollen is gathered by the bees from flowers and carried home packed in pellets on the rear legs. Occasionally a bee with a load of pollen may be seen rushing impetuously about the comb, looking for a cell into which to deposit the load. When such a cell is found the bee backs into the cell and holding the rear legs down dexterously brushes off the balls of pollen.

Honey and Attachment Cells.

Around the outsides of the combs are both worker- and drone-cells with white, yellow or bluish-white cappings, somewhat flattened in appearance. These contain honey that has been placed conveniently for feeding the young brood. At the edges of the comb, attaching the combs to the frames, are irregularly shaped cells called attachment cells.



Queen Drone Worker

(Photographed as nearly natural size as possible.)

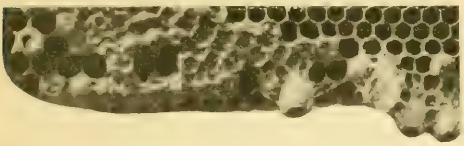
Life of the Drone.

The life histories and the activities of the three kinds of individuals in the hive are very interesting. Moreover, it is quite important that the beginner should have these histories and stages of development well in mind, in order that he may manage his colonies intelligently.

The drone or male bee develops from an unfertilized egg which the queen lays in a drone-cell. In three days the egg hatches into a tiny larva surrounded by a milky partially digested food called "chyle," which is provided by the nurse bees. This larva continues to increase in size until the sixth day from the hatching of the egg; then the larva begins spinning its cocoon and the cell is sealed, that is, a capping of wax and fiber is placed over the cell. On the 24th or 25th day from the laying of the egg, the drone leaves the cell and about two weeks later takes his first flight. The drones are entirely dependent on the workers for their food; and, whenever stores are short, the drones are driven outside to perish.

Life of the Queen.

Whenever, for any reason such as a deficient queen or a crowded condition in the supers or brood-chamber, a colony feels the need of a new queen, the bees begin the construction of long peanut-shaped queen-cells. As soon as they are nicely started the queen deposits a fertilized egg in each. After three days these eggs hatch into white larvæ, which may be seen floating in a white thick milky substance. The larva, cell, and amount of royal jelly increase until the sixth day from the hatching of the egg, when the cell is sealed. The fifteenth or sixteenth day after the egg was laid, the queen by means of her mandibles cuts a neat circular door at the lower end of her cocoon, and, pushing her way thru, emerges a full-fledged queen. Usually she helps herself to honey soon after leaving her cell and then makes a search for any possible queen or queen-cell that may be present, for all other queens and queen-cells must be destroyed if she is to reign supreme. Altho a queen very rarely uses her sting on a person, she uses it unhesitatingly on a rival queen. From five to ten days after leaving her cell, the queen takes her wedding flight and in a day or two increases considerably in size and assumes a more stately bearing. During the breeding season she may lay 3,000 or more eggs daily and perhaps as many as 200,000 annually for several years. Ordinarily, however, queens are not at their best after the first two years and many beekeepers, therefore, requeen every two years. Those queens that fail to mate properly, lay eggs, but the eggs being unfertilized produce drones only. Such a queen is called a drone-layer, and, unless replaced by a good queen, will soon render the colony worthless, since the workers are gradually dying and no others are coming on to take their places. If one is to succeed with bees, he must keep each colony always supplied with a good laying queen.



Sealed drone brood at lower left corner; above this sealed worker brood; and at the lower right, three queen-cells in process of construction. When completed the queen-cells will be long and peanut-like in appearance.

The Worker.

The egg that produces the worker is fertilized and is exactly like the egg that produces the queen, but because of different food and a different-sized cell it results in a worker instead of a queen. The egg hatches in three days, and for the next three days is fed the same kind of food as the queen larvæ, only in smaller amounts. After this the worker larva is fed honey and pollen. In 21 days from the laying of the egg the bee hatches.

The young bee is at first downy in appearance and easily distinguished. The first day or two she walks about eating honey and smoothing down her feathers. After this she acts as nurse bee, partially digesting honey and pollen and feeding it to the young larvæ, and also does other work about the hive such as comb-building, house-cleaning, etc. Her first flight or "play-spell" is taken about the eighth day. This is one of the prettiest of sights, to see the young bees circling about their doorstep in merry flight, getting a view of their home from every angle so that, in their later more distant flights, they may have no difficulty in recognizing their home. In two weeks after leaving the cell, the worker goes to the field for honey and pollen. Sometime when the beginner has the hive open he may perhaps notice some of these young bees returning to the hive with their first load of honey or pollen. What a commotion there is, to be sure! What an eager running about this way and that before the load is deposited! And then out the bee goes for another load. Soon other bees may be seen entering these same cells and carefully packing the pollen. One may perhaps also note workers carrying propolis in their pollen baskets. This propolis is a sticky, gluey substance which the bees gather from buds and use in filling in spaces about the hive.

From Nectar to Honey.

When a bee arrives in the hive with a load of honey, she searches until she finds a cell to her liking and then enters the cell with feet upward. Her mandibles touch the cell where the load is to be deposited. Then the mouth and mandibles open, and a drop of nectar appears. With the mandibles constantly in motion while quite likely some secretion is added to the nectar, the head is moved from side to side and the nectar spread over the upper cell wall. When this honey is first stored it is quite thin, but later the bees evaporate or "ripen" it until it contains less than 25 per cent of water. This work is done mostly at night, the bees standing on the combs with heads upward and then forcing a drop of nectar to the mouth and mandibles where it gently pulsates for about 10 minutes when it is swallowed and another drop appears. This work continues sometimes for nearly half the night. Anyone entering the apiary at this time will note the pleasant odor of the new honey and will also enjoy the drowsy sound of the millions at work ripening the honey.

Wax Production.

While the honey is being ripened and the nectar changed to honey, wax in the form of a liquid is secreted by eight wax scales on the under side of the abdomen. This liquid soon changes to delicate scales of wax, which after being chewed with secretion become plastic enough to be used in comb-building.

Requeening.

Good results can never be expected from any colony unless it is supplied with a good queen. The most desirable strain is the Italian. They may be distinguished by the three yellow bands on the abdomen. These bees are very gentle, are good honey-gatherers, and are quite resistant to disease. Italians are greatly to be preferred to the cross nervous blacks or to hybrids, which are mostly a cross between Italians and blacks but may be a cross between any two strains. Those possessing a colony of either blacks or hybrids will find it advisable to requeen with a good Italian queen, which may be purchased from any reliable breeder and introduced according to the directions that accompany her, not opening the hive for at least five days after introducing.

Clipping the Queen.

When for any reason a colony becomes dissatisfied with its home—usually because of insufficient ventilation or a crowded condition of brood-chamber or supers—the bees start preparations for swarming. When colonies swarm, two-thirds or three-fourths of the bees, together with the queen, leave for a new home. To prevent swarming, therefore, certain measures should be taken, among which is the clipping of the queen's wings. Having the queen's wings clipped does not prevent the colony from swarming, but it does prevent the bees from leaving for new quarters, because, at the time the swarm issues, the queen, finding herself unable to fly, finally crawls back into the hive, and the swarm, unwilling to leave without her, is compelled to return.

During the middle hours of any warm day when most of the field bees are out gathering nectar, the queen should be found and clipped. She will probably be on one of the central frames of brood and may be readily distinguished by her size and bearing, and also by the bees' attitude toward her as previously described. If picked up by the abdomen, the queen may be injured or killed. She should be carefully picked up by the wings or thorax. With the thumb and forefinger of the left hand hold the queen securely by the thorax, bringing the second finger under her so that she may grasp it with her feet. This gets her legs out of the way so there will be no danger of accidentally cutting one and thus rendering her useless. With a pair of sharp scissors, about one-half or two-thirds of the wings on one or both sides may be cut. The beginner should overcome whatever reluctance he may feel toward clipping the queen, for if these directions are followed she will not be hurt in the slightest.

Preventing Swarming.

If a colony becomes so crowded that queen-cells are started, they should be torn down and more room given, but it is much better to give the room fast enough so that no cells will be started. Those colonies that become crowded for room early in the season, while the nights are yet quite cool, should have a super of empty combs placed under the brood-chamber. This will enable the queen gradually to extend her brood-nest lower, and will leave the brood all in the warmest part of the hive where there will be no danger of chilling.

Two or three weeks before the opening of the main honey flow, when the nights are warmer, those colonies that become crowded for room may be given a super of combs or foundation immediately above the brood-chamber, and two frames of eggs and larvæ from the lower story placed in the upper one, replacing with empty combs or foundation. Of, if preferred, the order of these two stories may be reversed. It is to be hoped that combs will be used; for, if foundation is used when no honey is coming in, it is necessary to feed syrup in order to get the foundation drawn out, and one always objects to feeding syrup too near a honey flow for fear of getting syrup stored with the honey. When some brood is thus kept in the second story the bees become so accustomed to occupying the second story that they store above readily when the flow actually starts. A week or so after the opening of the honey flow, the queen should be placed below and a queen-excluder inserted between the two colonies.

Early swarming can probably be prevented if these directions are followed, and, as a general thing, more honey can be obtained if no increase is made.

If one desires increase, however, he may tear down all capped queen-cells, and insert a queen-excluder between the two stories, leaving the story of brood above and the queen with a little brood below, and then eight days later move the upper story to a new location. The capped cells may be left or, if desired, all but the best may be torn down. The hive should be left with contracted entrance so the brood will not be chilled.

Other Spring Work.

It is a poor plan to remove packing too early in the spring. As long as there is danger of cool weather, the colonies are better off with the added protection.

Weak colonies that are in danger of being robbed or of having their brood chilled, should have contracted entrances; but strong colonies will need a larger entrance, probably a full entrance a few weeks before the honey flow.

As stated in our last talk, there is no more important spring work than seeing that the colonies are continually supplied with plenty of stores right up to the main honey flow. On this one condition the beekeeper's failure or success often depends.

JUST NEWS

Editors

THE University of Tennessee, in its department of entomology, now offers a full year's course in beekeeping, open to all citizens of Tennessee who may register in the University either as regular or special students. A six-weeks' course is also given in midwinter. G. M. Bentley, State Entomologist, Knoxville, Tenn., is the enthusiastic and able head of the department which is offering such valuable aid to the beekeepers of Tennessee, and he can be addressed for fuller particulars.

Hildreth & Segelken, for many years well-known wax and honey dealers in New York City, recently went into bankruptcy, reporting their liabilities at $56,000 and their assets at $21,632.

* * *

In 1914 the total importations by the United Kingdom were approximately 2,600,000 pounds. By 1918 this had increased to 36,500,000 pounds, of which the United States contributed 16,000,000 lbs., valued at $5,500,000.

WHO'S WHO IN APICULTURE

State	Beekeeping Taught in Agrl. College	Net Weight Law?	Foul Brood Law?	State Inspector or Deputy	Secretary State Association
Alabama	No	No	No	None	No State Association
Arizona	Yes	Yes	Yes	S. Earl Mattason..St. Davids	Geo. M. Frizzell......Tempe
Arkansas	Yes	No	No	None	Miss Sophie Reed.Little Rock
California	Yes	Yes	Yes	County System	A. B. Shaffner...Los Angeles
Colorado	No	Yes	Yes	Wesley Foster........Boulder	Wesley Foster.......Boulder
Connecticut	Yes	Yes	Yes	Dr. W. E. Britton, New Haven	L. Wayne Adams...Hartford
Delaware	No	Yes	No	None	No State Association
Florida	Yes	Yes	Yes	C. E. Bartholomew...Orlando	No State Association
Georgia	No	No	No	None	No State Association
Idaho	No	No	No	W. H. Wicks.........Boise	No State Association
Illinois	Yes	No	Yes	A. L. Kildow.......Putnam	G. M. Withrow, Mechanicsburg
Indiana	No	Yes	Yes	F. N. Wallace...Indianapolis	Ross B. Scott.....La Grange
Iowa	Yes	Yes	Yes	F. B. Paddock........Ames	F. B. Paddock.........Ames
Kansas	Yes	Yes	Yes	Dr. J. H. Merrill..Manhattan	O. F. Whitney.......Topeka
Kentucky	Yes	No	No	County System	Dr. H. Garman....Lexington
Louisiana	No	No	No	None	E. C. Davis....Baton Rouge
Maine	No	Yes	No	A. M. G. Soule......Augusta	O. B. Griffin.........Caribou
Maryland	Yes	No	No	None	E. N. Corey....College Park
Massachusetts					P. S. Crichton........Boston
Michigan	Yes	Yes	Yes	B. F. Kindig...East Lansing	R. H. Kelty....East Lansing
Minnesota	Yes	Yes	Yes	Chas. D. Blaker, Minneapolis	L. V. France........St. Paul
Mississippi	Yes	No	No	Prof. R. W. Harned, Ag. Col.	No State Association
Missouri	Yes	No	Yes	None	Dr. L. Haseman....Columbia
Montana	No	Yes	No	None	F. E. Clift...........Huntley
Nebraska	Yes	Yes	Yes	County System	O. E. Timm......Bennington
Nevada					
New Hampshire	Yes	No	No	None	Pres. Littlefield.......Salem
New Jersey	Yes	Yes	Yes	Dr. T. J. Headlee, State Ent.	Elmer G. Carr....New Egypt
New Mexico	No	No	Yes	County System	H. C. Barron.....Hagerman
New York	Yes	Yes	Yes	Chas. Stewart.....Johnstown	J. H. Cunningham..Syracuse
North Carolina					J. E. Echert.........Raleigh
North Dakota	No	Yes	No		No State Association
Ohio	Yes	Yes	Yes	E. C. Cotton	Jas. S. Hine.......Columbus
Oklahoma	Yes	No	Yes	R. L. Blackwell....Lexington	J. W. Owen.......Chickasha
Oregon	Yes	Yes	No	None	No State Association
Pennsylvania	Yes	Yes	Yes		Chas. N. Green.........Troy
Rhode Island	No	Yes	Yes	Dr. A. E. Stene.State College	No State Association
South Carolina	No	No	No	None	No State Association
South Dakota	Yes	Yes	Yes	L. A. Syverud......Yankton E. A. Fox..........Fruitdale	L. A. Syverud......Yankton
Tennessee	Yes	No	Yes	J. M. Buchanan....Franklin	G. M. Bentley......Knoxville
Texas	Yes	Yes	Yes	M. C. Tanquary	Miss Alma Hasselbauer... ....San Antonio
Utah	No	Yes	Yes	Frank B. Terriberry	No State Association
Vermont	No	Yes	Yes	C. E. Lewis, East..Shoreham	Ernest Larabee....Shoreham
Virginia	No	Yes	No	None	W. J. Schoene....Blacksburg
Washington	Yes	Yes	Yes	H. A. Scullen......Pullman	G. W. B. Saxton....Harwood
West Virginia	No	Yes	Yes	Chas. A. Reese....Charleston	Chas. A. Reese....Charleston
Wisconsin	Yes	Yes	Yes	Dr. S. B. Fracker...Madison	H. F. Wilson.......Madison
Wyoming	No	Yes	No	None	No State Association
British Columbia	No	Yes	Yes	W. J. Sheppard......Nelson	Williams Hugh....Cloverdale
Ontario	Yes	No	Yes	F. Eric Millen.......Guelph	F. Eric Millen.......Guelph

Beekeeping taught also in some other colleges and schools in Arkansas, California, Indiana, Tennessee, Texas, and British Columbia.

OUR HOMES

A. I. ROOT

Let your communication be Yea, yea; Nay, nay: for whatsoever is more than these cometh of evil.—Matt. 5:37.

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from the evil.—John 17:15.

A FRIEND of Gleanings sends the below which he clipped from the *Kingsley Gospel Tidings*, the editor of which credits it to the *Ivester Glad Tidings*. While I thank the good brother for the information he gives us, I am not quite sure that I entirely agree with him. It has never occurred to me that "gee" had any relation to the word Jesus. I may have used the word to express surprise in times past, but I will try to do so no more.

SWEARING.

The Church of the Brethren stands on Scripture grounds against swearing, but yet there is a sugar-coated swearing that is winked at. Very few people are really free from swearing according to the following: A person used the expression "Gee" not long ago. It had never occurred to that one that this was taking the name of the Lord in vain, and probably few of the many who indulge in sugar-coated profanity realize that they are swearing. What is "Gee" tho but a euphemism for Jesus? "Dear me," is nothing but the Latin "Deo Meo" (My God). "For goodness sake" is only "For God's sake." "For land's sake" is "For Lord's sake." "Drat it" is "God rot it," "Judas Priest" is "Jesus Christ." "Golly," "Gosh," "Gorry," etc., are only corruptions of "God." "Darn it," "Dash it," "Ding it," "Blame it," etc., are only variations of "Damn it." In short, there is probably not an expression of this sort that cannot be traced back to an oath for its origin. Notwithstanding this you will every day hear people using them thoughtlessly, who would be terribly shocked by an outright oath.—*Ivester Glad Tidings.*

The expression "dear me"! *may* mean "my God"; but I have never taken it so, and I can not think the good friends—yes, and the good women who use the exclamation—have so understood it. The same with the expression "for goodness sake!" The other words mentioned in the clipping, I agree, are undignified. While I used them more or less when I was a boy I have not done so of late years; and I think it is an excellent idea for all of us to heed the words of the dear Lord at the head of this article. A man who tells the truth is not often very vehement about it. I think, as a rule, all the world has more faith in a statement when the speaker does not lose his temper. We might include, in the above, slang expressions of all sorts. Many of them, or, in other words, too many of them, are undignified to say the least. Quite a number of our periodicals have humorous writers, and I often laugh over their queer spelling and slang; and I am not sure that there is anything wrong about it if it is not carried too far. Many of us remember Josh Billings, Artemus Ward, Alf Burnett, and others. Billings once said, "It is a bad plan to tell lies, as I know by experience." I had a big laugh over the expression, and it really did me good.

Most of you can doubtless remember other things that have made an impression just because they provoked laughter. As I look back over my life I remember a period when slang phrases seemed to go all over our nation, and after a while these expressions would be forgotten, and yet there would be other slang phrases that seemed to spread like wildfire. Sometimes what might be called a slang phrase or, perhaps, more properly, a little bit of pleasantry, will restore good feeling when there is a jangle that might result in a quarrel. On page 742 of November Gleanings, 1919, I used the expression, "They got the wrong pig by the ear." But that little expression that has been handed down from generation to generation hits the spot better than any other words I could use. By the way, 50 years ago we used to have sermons not only an hour long but sometimes they took two hours, and there was not a bit of pleasantry, and perhaps not a single anecdote, to attract the attention of the children. No wonder they did not like to go to meeting. Nowadays the average pastor recognizes the children, and perhaps some old ones, who might be inclined to go to sleep if they were very tired after a hard week's work; and a little bit of pleasantry on such an occasion, or something to remind the people that the preacher *knew* what was going on in this world of ours—yes, out on the farm, in the factories, and in the stores and groceries—some little incident, and maybe something that some good people might call slang, would catch the children, wake up the sleepy ones, and maybe *drive home* a wholesome moral point. And here comes in my second text:

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from the evil.—John 17:15.

"PEACE ON EARTH, GOOD WILL TO MEN."

For some time I have been astonished to read about prize fighting in a way that would seem as if it were one of the regular events of the day—perhaps nothing particularly good about it; and it has really seemed as tho some periodicals seemed to think these fights were of no particular harm. There was a prize fight lately in our neighborhood—that is, in the city of Toledo. And, by the way, I believe the Anti-Saloon League has considered Toledo about the wettest spot in Ohio, according to the population; and, as is usual under such circumstances, there was not very much inclination on the part of the authorities to enforce our just laws in regard to intemperance. Well, there was one thing that pleased me about the Toledo prize fight—the *attendance* was a disappointment. By the way, I supposed we had laws forbidding things of that kind; and I supposed, also, there were federal laws. It seems to me that somebody explained it by saying that this was not a real prize fight—it was just a "sparring-match." But even if that is true, one of the combatants was killed not very long ago in the neighboring city of Akron. But I have never been able to learn whether anybody was arrested by law for murder or not. While I was considering the matter, and wondering that our churches and religious periodicals did not make more stir about it, I came across the following in Dr. Bigelow's magazine, *Guide to Nature.* The doctor clips, as you will notice, from another periodical.

> IS THIS A CIVILIZED ERA?
>
> Last Monday night, in the Newark, N. J., Armory, a couple of prize fighters, both of whom may perhaps be able to read the English language and write and speak it after a fashion, stood up and mauled each other before 12,000 people, including "statesmen, judges, lawyers, actors, song writers, bankers, business men—in fact, luminaries from the top rung of the social ladder to the bottom," who paid $58,500 in admission fees to see the fight.
>
> Suppose that, instead of an exhibition of human bulldog savagery, the occasion had been a debate on a subject of the intensest interest, between two of the most eminent educators in the country. Does anybody think the figures of attendance and receipts would bear any comparison to those quoted above? —*Greenwich News and Graphic?*
>
> * * * * * * * *
>
> Fifty-eight thousand five hundred dollars, given for one evening's slugging between what is supposed to be two civilized men, is more money than The Agassiz Association has received to carry on its work in the whole 44 years of its existence.
>
> In what kind of a world are we living? and what is it that so appeals in a slugging match more than in the plain common-sense activities in the outdoor world?

I want to put in a big amen to that concluding sentence. Not only America but the whole wide world is just now excited in regard to the League of Nations that will do away with wars as a means of settling difficulties. What in the world is prize fighting if it is not war? Then the shameful part of it is not only that $58,500 was paid for admission, but that statesmen, judges, lawyers, etc., according to the Greenwich *News and Graphic,* "from the top rung of the social ladder to the bottom, took part." But I do not quite agree with them. There is no mention of ministers of the gospel, nor even of our college professors, and I hope that none such were present. It occurs to me (but perhaps I am wrong) that the class of people who delight in this "bulldog savagery" are the very ones that would be likely to lead a lynching gang; and if they could not find "the right nigger," as one of the crowd said recently, "Give us *any* nigger." I hope to live long enough to see not only prize fighting but lynching taken in hand by the strong arm of the law. Just a word more:

Horse racing used to be a great pastime, and I am afraid it was a great excuse for gambling; but since automobiles and, later, flying-machines have left the poor horse away in the wake, the whole wide world begins to recognize that electricity and gasoline are to relieve the poor horse, because he is not "anywhere" compared to these other agencies. Well, it is a grand thing to develop human muscle as well as the muscles of animals; but can it not be developed just as well and just as thoroly in making a garden or doing something that will tend to "reduce the high cost of living," instead of beating up some fellow man? May God help us.

POTASH FOR POTATOES.

In my experiments at my Florida home in growing potatoes, I for several years used a fertilizer with a pretty large percentage of potash. When the war opened up and cut off the potash from Germany the potash was largely omitted. In fact, I bought one or two sacks of fertilizer containing no potash. I wrote to Professor Rolfe, of our Florida Experiment Station, and he advised *some* potash, even if it did cost extravagantly. After considering the matter I find the following in the *Florida Grower*:

> POTATOES ON FLORIDA SOILS NEED POTASH.
>
> During the past two years B. F. Floyd, plant physiologist to the agricultural experiment station, has been conducting an extensive field experiment with potash fertilizers on a potato plantation near Hastings. The experiment included five acres. The soil was a sandy loam underlain with clay at a depth of about two feet and well drained. The land was new and had never received any fertilizer previous

to the time the experiment was started. Complete fertilizers containing none, 1 per cent, 2 per cent, and 5 per cent potash, respectively, were used. The fertilizer was applied at the rate of 1,700 pounds per acre.

The experiment was begun in the spring of 1918. The average yield per acre for all plats that were given ammonia and phosphoric acid, but no potash, was 12.7 barrels in 1918, and 27.8 barrels in 1919; that for the plats receiving ammonia, phosphoric acid, and potash, irrespective of amount, was 23.4 barrels in 1918 and 43.5 barrels in 1919.

The following table shows the yields in barrels per acre obtained in 1918 and 1919 where the various amounts of potash were used:

	1918	1919
No Potash	12.7	27.8
1 Per Cent Potash	20.2	35.5
3 Per Cent Potash	24.7	41.6
5 Per Cent Potash	25.2	53.5

In 1918 the field was new, the land having been cleared less than a year previous. No crop had been grown on the land previous to the time the potatoes were planted. During the summer of 1919, following the potatoes, a crop of cowpeas was planted on the land. The cowpeas made a uniform growth over the whole field. No difference in growth was noted between the parts where no potash had been used and the parts where potash fertilizers had been applied. The cowpeas were cut and plowed under as a soil improver.

After reading the above I felt still a little uncertainty about it; so I submitted the clipping to Director Thorne, of the Ohio Experiment Station. Below is his reply:

Mr. A. I. Root:—In regard to the use of potash, I enclose a leaflet from a bulletin which is now in press, which will be sent you as soon as completed, and call your attention to the way potash has been behaving on our potatoes. Taking the 12-year period, 1894-1905, you will notice that acid phosphate has given 18 bushels of potatoes in increase and potash only 4 bushels, while during the next period the acid phosphate gave a minus of 2 bushels, while the potash has increased to 26 bushels. You notice further down the middle column that acid phosphate and potash combined gave 21½ bushels during the first period and 46½ bushels during the next, showing that acid phosphate was not without effect, provided it had the help of potash; but that the chief role had shifted during these 25 years from phosphorus to potassium. Turning over this sheet and taking the wheat figures, you will see that acid phosphate has remained consistently in the lead thruout the entire 25 years. It is one of the queer things in our work, but supports the commonly accepted belief that potatoes are peculiarly responsive to potash. You will notice that it took more than 12 years, however, for this condition to manifest itself in this work of ours. Yours cordially,

CHAS. E. THORNE.

Wooster, O., July 9, 1919.

A REPORT FROM WHERE SUNFLOWER SEED IS GROWN BY THE THOUSANDS OF TONS.

SEE PAGE 612, SEPTEMBER ISSUE.

Dear Mr. Root:—I am sorry, but I am afraid I am not able to give you the information you wish, and I don't know of any one who can give it. I keep about as many colonies of bees as any one person in this locality, and attend to my bees as well as any one. We know that the honey from sunflowers is light yellow in color and in quality is good, but the amount from that source alone I can not tell. There are many other sources now, as this region raises considerable alfalfa (sweet clover has quite a start) and all kinds of melons; in fact a little of everything in the garden line. So the honey is mixed. I extracted some while sunflowers were at their best, and got the nearest pure sunflower honey that we have secured for several years. More sunflowers were raised this year than for several years before, and as they bring a good price, more will likely be raised next year. They are surely a good honey plant, as bees are at work on them all the time they are in bloom. On ditch banks and similar places there are lots of wild sunflowers which bloom until killed by frost. While cultivated sunflowers were in bloom, I noticed there were very few bees working on the wild varieties, but now there are many working on the wild. This is just the time for harvesting the sunflowers. The buyers are offering for seed 7 and 7½ cents a pound.

ERNEST E. WARREN.

Manteca, Calif., Sept. 7, 1919.

The new sunflower referred to on page 612, September Gleanings, which was originated by Burbank, is now growing in our garden. We have about 50 plants. While the greater part of them are only three or four feet high, and have only one large blossom, there are perhaps five per cent of the plants that run up tall and send out side branches with small heads. From this we judge the type is not yet fixed.

The bees are hovering over the blossoms more or less all day long. I do not know how much honey they get; but most of them carry away good-sized loads of pollen. There is also a sticky substance, not only on the blossoms but on the leaves near the stem. The bees work on this, even before any bloom appears. Some of the leaves are 18 inches across, and as long as that from the stem to tip.

Later.—Since the above was written we have received the following from friend Warren:

Dear Mr. Root:—I sent you a sample of as near the pure sunflower honey as I could, as I said in my other letter. It is almost impossible to get it pure now, as so many other flowers are in bloom at the same time. The honey I sent you was only to give you a better idea of the sunflower honey than I could tell you. Please accept it with my compliments. We have a good market for all we can produce. A few colonies produced a little over 100 pounds each of that kind of honey, but most of them about 50 pounds. Our fall honey is quite dark. I keep only about 70 colonies.

ERNEST E. WARREN.

Manteca, Calif., Sept. 23, 1919.

STILL LATER: SUNFLOWERS FOR RABBITS AND SUNFLOWERS FOR "H. C. L."

Kind Friend:—I have just met one of your "happy surprises." Last evening I was getting out some sunflower seed, and after I had gotten the seed out I sliced one of the heads for my rabbits, and it looked so good that I had my wife fry some of it for breakfast this morning. It was fully as good as eggplant or mushrooms; and was the best substitute for meat I have ever found. I ate quite freely of it and have experienced no ill effects from it yet. Maybe you know if it has been used for human food and if it is perfectly wholesome.

A. L. BEALS.

Rt. 3, Cicero, Ind., Oct. 5, 1919.

Classified Advertisements

Notices will be inserted in these classified columns for 30 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued while they are in good standing.)

Theodore N. Ross, Wilmer Clarke, Edw. A. Winkler, Chas. Sharp, Custer Battlefield Apiaries, E. B. Rosa, A. M. Moore, A. Stanley & E. C. Bird, A. W. Smith, Allenville Apiaries, S. T. Crawford, B. F. Averill, D. T. Gaster, J. F. Michael, St. Vincent Collie Kennels, F. Rasmussen, C. N. Flansburgh & Son, Leahy Mfg. Co., Leonard-Morton & Co., W. N. Scarff & Son, L. W. Crovatt, R. H. Shumway; Holden Mfg. Co., W. H. Laws, F. J. Severin, Electric Wheel Co., Elias Fox, F. M. Baldwin.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover extracted honey in 5-lb. pails. L. S. Griggs, 711 Avon St., Flint, Mich.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Four tons choice clover honey, extra well ripened, packed in new 60-lb. tins, two in a case. Wish to sell in one lot.
Lee & Wallin, Brooksville, Ky.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey, in 60-lb. cans, at 22½c per lb. f. o. b. Brooksville. Sample 25c.
W. B. Wallin, Brooksville, Ky.

FOR SALE.—We have a very choice lot of white clover honey at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—We have a small part of our crop of white clover-basswood extracted honey left, packed in new 60-lb. cans, two to the case. Write for prices. D. R. Townsend, Northstar, Mich.

FOR SALE.—24 cases buckwheat comb honey No. 1 quality, $6.00 per case; 12 cases mixed, not all capped, $4.00 per case, six cases to carrier; clear clover extracted, 25c per pound. Buckwheat and clover mixed, 20c; two 60-lb. cans to case.
H. G. Quirin, Bellevue, Ohio.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey, but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many—one can, $15.50; case of two cans, $30.00. If a larger quantity is needed, state how much you will need and we will quote you a special low price. Kindly address, with remittance,
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Small lots of off-grade honey for baking purposes.
C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—Bulk comb, section, and extracted honey. Write us what you have and your price.
J. E. Harris, Morristown, Tenn.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address so we can identify it immediately upon arrival, and make prompt remittance.
The A. I. Root Co., Medina, Ohio.

FOR SALE

I manufacture Modern Cypress beehives. Write for prices. J. Tom White, Dublin, Ga.

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—3,000 4¼ x 4¾ x 1⅜ Root sections. At a bargain. A. C. Ames, Weston, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

FOR SALE.—Illinois, Indiana, and Kentucky Beekeepers. Root's Goods at Root's prices.
Gronemeier Bros., Mt. Vernon, Ind.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. &. E. C. Porter, Lewistown, Ills.

FOR SALE.—200 8-frame hives with newly drawn combs, wired, $2.75 each. Write
Fred Alger, Waukau, Wisc.

FOR SALE.—Comb foundation at prices lower than you had thought possible. Wax worked for cash or on shares. Satisfaction guaranteed.
E. S. Robinson, Mayville, N. Y.

FOR SALE.—New and used beehives and supers. (Italian bees.) Farm of 145 acres, very productive. Fine location and fine buildings. Fruit orchard and sugar bush. Ralph Hibbard, Calcium, N. Y.

We can save you money on Cypress hives, frames, etc. Write for prices.
Sarasota Bee Co., Sarasota, Fla.

How many queens have you lost introducing? Try "The Safe Way," push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

FOR SALE.—Five 4¼ x 4¼ x 1⅞ 10-frame supers, complete, $8.00.
Wilford Crumrine, R. D. No. 7, Wabash, Ind.

FOR SALE.—125 honey cans, used once, 2 in case, per case, 50c. Leach's Bee Farm, Milwaukee, Wis., Sta. D, R. D. No. 2, Box No. 540.

FOR SALE.—Super foundation mill, entirely new. Money back if not as represented.
Wilbert Harnack, McGregor, Iowa.

FOR SALE.—150 section shipping cases nailed up with glass front holding 20 4 x 5 plain sections, 15c each. The Hyde Bee Co., Floresville, Texas.

FOR SALE. — Ten-frame standard dovetailed hives in lots of from one to fifty. Very cheap. Write for prices. Wm. Craig, Aitkin, Minn.

FOR SALE.—Hives complete, 1st class, new and almost new, accessories.
Stroh, 5521 Ridge Ave., Philadelphia, Pa.

FOR SALE.—Second-hand hives, 8-frame, in good condition, mostly California Redwood. Write for prices. R. B. Williams, Ingleside, Texas.

ROOT'S BEE SUPPLIES.—For the Central Southwest Beekeeper. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

FOR SALE.—150 cases (2 in case) second-hand 5-gallon honey cans at 50c per case f. o. b. Milwaukee. Laabs Brothers Co., 20th & Walnut Sts., Milwaukee, Wis.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition at 50c per case. Buy them now for next summer's honey crop.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—About 4,000 each, fence separators and holders (4 x 5). Used a few years, but in good condition, $1.50 per 100.
J. D. Hull & Bro., Honesdale, R. D. No. 1, Pa.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE. — One 8-frame Root's automatic power honey-extractor; one honey pump, one gasoline engine. I will sell all together, or any one separately. Write for price.
Elmer Hutchinson, Lake City, Mich.

FOR SALE.—One Barnes No. 4 saw; one No. 5 Oliver typewriter; a two-frame extractor; and an Excelsior twin motorcycle. All in good condition, cheap for quick sale.
Warren Miller, Manlius, N. Y.

FOR SALE. — Four six-frame Root automatic hand extractors for Langstroth frame. All in perfect condition. Reason for selling—am using eight-frame power extractor.
C. J. Baldridge, Homestead Farm, Kendaia, N. Y.

FOR SALE.—49 twin-mating nuclei hives with frames 5⅝ x 8 inches, in good condition. Price, $1.00 each or $45.00 for lot. 160 shallow division-boards, nailed, new, 5c each.
Wayne Shilling, Lebanon, R. D. No. 3, Pa.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FOR SALE.—First 23 volumes of Gleanings. First 17 volumes bound in black cloth with gilt lettered backs. What offers? Best cash offer gets them.
Geo. Cork, 24 Woolfrey Ave., Toronto, Ont., Can.

FOR SALE. — Good second-hand double-deck comb-honey shipping cases for 4¼ x 4¼ x 1⅞ sections, 25c per case, f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

FOR SALE.—New Novice extractor, $22; 2 Cowan extractors, $31.00 each. Italian queens, untested, $1.50. A safe plan for making increase, 20 cents in stamps. Bargains in supplies.
R. Kramske, 1104a Victor St., St. Louis, Mo.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10-frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

FOR SALE.—At right prices, Root Jumbo, 10-frame, dovetailed hive bodies, 16¼ inches wide, with metal-spaced frames. Everything nailed and painted, 3 coats of white. Work done by expert mechanics. This lot of 300 bodies has never been out of our warehouse. Dadant medium brood foundation for Jumbo and L. frames, but offered only when brood-chambers are ordered. We can make verified statement, naming several apiary inspectors, that no disease has ever been found in our yards or in this section. Send for complete list and prices. We also offer all kinds of Root 8- and 10-frame supplies slightly used. Orders carefully packed and prompt shipments made. Here are the best of supplies ready to go into the apiaries at money-saving prices.
The Hofmann Apiaries, Janesville, Minn.

REAL ESTATE

FOR SALE.—25 acres 2 miles from Waverly, Va., or trade for 2 to 5 acres, as I don't need so much land.
C. B. Peterson, 6959 Union Ave., Chicago, Ills.

FOR SALE OR RENT.—One of the best honey locations in Wisconsin, 5 acres splendid soil, good buildings, nice shade. Terms, if desired; also 65 colonies bees, 3,000 drawn combs and other large equipment. No disease in Rusk Co.
E. R. Wilson, Glen Flora, Wisc.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. $1.50 per year. 15 cents per copy. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

WANTS AND EXCHANGE

WANTED.—10 to 50 colonies of bees. Write particulars to Ross B. Scott, LaGrange, Ind.

WANTED.—To sell or trade 300 8-frame hive shipping screens. F. W. Morgan, DeLand, Ills.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—To buy 300 colonies of bees, equipped for extracted-honey production.
L. S. Griggs, 711 Avon St., Flint, Mich.

WANTED.—First-class Stradivarius violin, of foreign make. No maplewood wanted. Must be in condition. Henry Asam, Carleton, Mich.

WANTED.—Bees with queen in 2-lb. packages, for Beseler double-dissolving stereopticon, complete, in perfect condition. Value, $100. Make best offer. C. T. Mantz, Barryville, N. Y.

WANTED.—3 cars of good mixed hay that shall grade good No. 2. Will take a mixed car of straw oats or corn. Bags furnished if needed.
Thomas J. McDermott, Belleville, N. J.

WANTED.—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

QUEENS ON APPROVAL.—Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested, $1.25 each; dozen, 12.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—1920 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

QUEENS ON APPROVAL.—Bees by package or colony. Birdie M. Hartle, Reynoldsville, Pa.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Bright Italian queens, $1.50 each; $14.00 per doz. Ready after April 15.
T. J. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Italian queens, mailed as soon as hatched. Safe arrival guaranteed. June 1, one, 75c; 10, $6.00. Evan Jones, Franklinville, N. J.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Golden queens. Will begin filling orders May 15 in rotation. Untested, $1.10; selected untested, $1.50 each. Safe arrival.
Hazel V. Bonkemeyer, Randleman, N. C.

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.50 for 10. $1.10 each when 25 or more are ordered. Allen Latham, Norwichtown, Conn.

FOR SALE.—Italian Bees and Queens (the kind that fill from 2 to 4 supers) full colonies, $12.00 and $15.00 each. Queens, after May 1, $2.00 each, 6 for $11.00. Miss Lulu Goodwin, Mankato, Minn.

FOR SALE.—QUEENS. Italian queens of excellent stock will be ready to mail June 1. Untested, $1.50 each; 6, $7.50; 12, $14.00.
J. D. Harrah, R. D. No. 1, Freewater, Oregon.

FOR SALE. — Leather-colored Italian queens, tested, until June 1, $2.50; after, $2.00. Untested $1.25; 12, $13.00. Root's goods at Root's prices.
A. W. Yates, 15 Chapman St., Hartford, Conn.

FOR SALE.—Golden and three-banded queens untested, April, May, and June delivery, $1.25 each; $12.50 per doz. Satisfaction.
R. O. Cox, Greenville, R. D. No. 4, Ala.

FOR SALE.—Queens, nuclei, packages, colonies from our apiaries in Arkansas and Louisiana. Write for prices now.
The Foster Honey & Merc. Co., Boulder, Colo.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

BEES BY THE POUND. — Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

FOR SALE.—We have all package orders we can handle this season, but can still book orders for queens. J. A. Jones & Son, R. D. No. 1, Box 11a, Montgomery, Ala.

FOR SALE.—My famous three-band Italian queens, one for $1.25, six for $7.00. From June 1 to November.
J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

FOR SALE. — Leather-colored Italian queens from Dr. Miller's breeder. Virgins, $1.00; tested, $1.50. July 1, 5, $6.00; 10, $11.00.
F. R. Davis, Stanfordville, Dutchess Co., N. Y.

Bees by the pound a specialty; 2000 lbs. for May delivery, 1920; 200 Italian queens for sale with above bees. Write for prices.
A. O. Jones & H. Stevenson, Akers, La.

GOLDENS THAT ARE TRUE TO NAME. 1 select untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.
Garden City Apiaries, San Jose, Calif.

FOR SALE.—3-lb. packages of good and vigorous hybrid bees, $4.00. Hybrid queens, 75c extra. Shipments from May 20 to June 10. No disease near here. L. L. Ferebee, Ridgeland, S. C.

FOR SALE. — Hardy Northern-bred Italian queens, untested, $2.00 each; 6 for $11.00; select tested, limited number, $3.00 each after June 1.
Dr. C. E. Sheldon, Coeur d'Alene, Idaho.

NUCLEI.—Two-frame, without queen, $4.00; with untested queen, $5.50. The bees may or may not be pure, the queen will be. Delivery in May.
Dr. E. P. Stiles, Austin, Texas.

FOR SALE.—30 colonies bees in 10-frame hives, spaced 9 frames to the hive. Shipment to be made about June 1, when they will be taken out of their winter cases. Price, $15.00.
F. J. Rettig, Wabash, Ind.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Italian queens, the kind that are sure to please you. Untested, in April, $1.25 each; one untested, May 1 to July 1, $1.00; one tested, May 1 to July 1, $1.50. Discount on large orders. Safe arrival guaranteed. L. R. Dockery, Carrizo Springs, Texas.

A. I. Root strain of resisting and honey-gathering leather-colored Italian queens that a trial will convince. Untested, $1.50 each; 25 or more, $1.40; tested, $2.50 each; 25 or more, $2.25; select tested, $3.00. A. J. Pinard, Morgan Hill, Calif.

DAY-OLD QUEENS at practical prices. Superior improved Italian stock. Mailed in safety introducing cages. Safe arrival guaranteed to any part of the U. S. and Canada. Send for circular. Prices, 1, 75c; 10, $6.00; 100, $60.00.
James McKee, Riverside, Calif.

FOR SALE.—Bees, good hybrid stock from outyards in 2-lb. packages, with a tested Italian queen, from home yard at $7.00 per package; with three-banded untested queens, $6.00. Two-frame nucleus, Italian bees, $5.00; 3-frame, $6.75.
C. H. Cobb, Belleville, Ark.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

BUSINESS-FIRST QUEENS.—Untested, $1.00 each; $11.00 per doz.; select untested, $1.50 each; $12.00 per doz.; tested, $2.00 each; select tested, $2.50 each; breeding queens, $5.00 and $10.00 each. Safe arrival guaranteed in the United States.
M. F. Perry, Bradentown, Fla.

FOR SALE.—Italian queens, three-banded and Goldens. High grade, carefully bred from best select stock. Price each, $1.25; 6, $6.50; 12, $13.00; extra select, $2.00. Orders booked now. Satisfaction guaranteed.
G. H. Merrill, Pickens, S. C., (Formerly Liberty.)

FOR SALE.—60 colonies of bees in one-story ten-frame hives, wired frames, full sheets of foundation. Young queens, strong and free from disease. This lot of bees is above the average, and I offer the entire lot for $900 f. o. b. Washington, Indiana. No order for less than the entire lot considered. S. H. Burton, Washington, Ind.

ITALIAN QUEENS.—Three-banded, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, $1.25 each; 12 or more, $1.00 each. Send for circular.
J. H. Haughey, Berrien Springs, Mich.

MOTT'S NORTHERN BRED ITALIAN QUEENS.—I have breeding mothers placed in the South for April and early May queens. Plans "How to Introduce Queens and Increase," 25c. If you want beauty with the best of summer and winter laying birds, try a setting of my Golden Campines. E. E. Mott, Glenwood, Mich.

We have enlarged our queen yard considerably. We can take care of orders better than ever, large or small. April 15 to June 1, untested queens, $1.25; tested, $2.50; untested, $115.00 per 100. After June 1, $1.00 each or $90.00 per 100. J. A. Jones & Son, Montgomery, R. D. No. 1, Box 11a, Ala.

QUEENS.—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, $2.00; six, $9.00; twelve, $16.80. After June 1, $1.50; six, $8.00; twelve, $14.00. Select tested, $3.00 each. Write for prices per hundred. Descriptive circular free.
Hardin S. Foster, Dept. G, Columbia, Tenn.

FOR SALE.—Highest Grade Three-banded Italian queens, ready June 1. Queen and drone mothers are selected from stock of proven worth in hardiness, gentleness, honey production and disease-resisting qualities. Untested, each, 1.25; 6, $6.50; 12, $12.00; 50, $47.50; 100, $90. Your correspondence will receive prompt attention and I guarantee satisfaction.
A. E. Crandall, Berlin, Conn.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, $2.00; six, $8.00; doz., $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—By return mail, tested Italian queens, $2.50 each; untested queens ready May 1, $1.25; 12, $13.50. No disease and all queens guaranteed to be the best.
J. W. K. Shaw & Co., Loreauville, La.

THE ITALIAN QUEENS OF WINDMERE are superior three-band stock. Untested, $1.50 each; six for $8.00; tested, $2.00 each; select tested, $2.50 each; virgins, $1.00. Nuclei for sale.
Prof. W. A Matheny, Ohio University, Athens, O.

FOR SALE.—Three-band leather-colored Italian queens. Safe arrival guaranteed. No disease. Hustlers, none better. 1, $1.00; 12, $10. Write for circular and prices on quantities.
J. M. Cutts, R. D. No. 1, Montgomery, Ala.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

ITALIAN QUEENS.—The Old Reliable three-banded Italians, the best all-around bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, $1.50; 6, $8.00; 12, $15.00. Tested, $2.25; 6, $12.00; 12, $22.00. Select tested, $3.00 each. Descriptive circular and price list free.
John G. Miller, 723 C St., Corpus Christi, Texas.

1920 prices on nuclei and queens. Miller strain. Queens, untested, $1.50 each; $15.00 per doz.; tested $2.00 each, $22.00 per doz. One-frame nucleus, $3.00; two-frame, $5.00; three-frame, $6.50, without queens, f. o. b. Macon, Miss. We have never had any bee or brood disease here. Will have no queens except for nuclei until June 1. Safe arrival and satisfaction guaranteed.
Geo. A. Hummer & Sons, Prairie Point, Miss.

Mr. Bee Man, if you are a subscriber to Gleanings you know we are growing; so why not order your wants from us. Nine years' experience in shipping bees all over U. S. and Canada. All bees are shipped on a standard frame of brood and honey, the safest way to ship. Prices, 2-lb. package bees with one untested three-banded Italian queen, $5.75; 3-lb. same as above, $7.00; 5-lb. swarm, the real start, $9.00. A few hybrid bees from outyards. But remember all queens are reared from our home queen yard. 5 per cent discount on 25 or more packages. Safe delivery guaranteed, also free from disease of any kind. Can start shipping May 10.
Oscar Mayeux, Hamburg, Box No. 15, La.

TESTED QUEENS.—I make a practice of requeening all my colonies each year with young queens. I am going to offer the tested queens for sale. They are descended from the Moore strain of leather-colored Italians. Only one year old this coming summer, right in the prime of their lives, just old enough to thoroly test them. I will begin mailing the queens the last of June, and finish in July. I like to have enough orders in advance to take them all, as I can work to better advantage in requeening. I will receive and book orders now, and will fill in rotation when I begin mailing them. Price, $2.00 each; 12 for $22.00. A few choice breeding queens, some two years old for $5.00 each. Safe arrival and satisfaction guaranteed.
Elmer Hutchinson & Son, Lake City, Mich.

MISCELLANEOUS

Eleven months Rufus Red Belgian does, bred, $3.00 each.
Erwin's Stock Farm, Walled Lake, Mich.

Annual White Sweet Clover seed, trial packets at $1.00 per packet, postpaid.
Henry Field Seed Co., Shenandoah, Iowa.

No ants where tansy grows. Get it started this spring. 3 plants, 25c.
M. D. Smith, Preston, Iowa.

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

HELP WANTED

WANTED.—Man to work with bees. Board furnished. State age, experience, and wages wanted in first letter. Mathilde Candler, Cassville, Wisc.

WANTED.—A competent beekeeper to work bees in southern New Mexico. Must be thoro and fast worker. Mesilla Valley Honey Co., Canutillo, Tex.

WANTED.—Experienced man for comb honey. Give age, experience, and salary expected.
B. F. Smith, Jr., Fromberg, Mont.

WANTED.—A competent young man to help care for 300 colonies of bees and other work. Capable of running a Ford car. State experience and wages wanted. J. W. Hackney, Weldona, Colo.

WANTED.—A good queen-breeder, begin at once. An opportunity to learn the package business and a good position for the right man. State age, amount of experience, and salary wanted in first letter. W. D. Achord, Fitzpatrick, Ala.

WANTED.—We can use an experienced man in extracted-honey production during the season of 1920. Applicant kindly state age, experience, and wages expected in first letter, and oblige.
E. D. Townsend & Sons, Northstar, Mich.

WANTED.—Man, season of 1920, to work with bees. State age, experience, and wages. Give reference. Permanent employment to right man. The Rocky Mountain Bee Co., Box No. 1369, Billings, Mont.

WANTED.—One experienced beeman and one helper. Must be young man, able-bodied, and with good character. Prefer one man that can handle auto truck. State salary and give references when answering. Ernest W. Fox, Fruitdale, So. Dak.

WANTED.—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted. W. A. Latshaw Co., Clarion, Mich.

SITUATIONS WANTED

WANTED.—Position on bee farm near Connecticut this summer.
J. Hodous, 9 Sumner St., Hartford, Conn.

TRADE NOTES

REMARKABLE BEE DISCUSSIONS.

In Gleanings in Bee Culture for the year 1911 appeared several rare series of articles on beekeeping by beekeepers of exceptional ability. These were "Beekeeping for Beginners," 12 articles, by E. D. Townsend; "Beekeeping in Florida," 13 articles, by E. G. Baldwin; "Beekeeping as a Hobby," 5 articles, by F. Dundas Todd; "General Topics of Beekeeping, 9 articles, by S. D. House. This volume of 1911 was one of the best ever published by the Editors of Gleanings. We chance to have 55 bound volumes of the year 1911 (a very little shelf-worn, some of them) that we will sell, postpaid, at $1.25 each. First come, first served. Address Gleanings in Bee Culture, Medina, Ohio.

BOOK YOUR ORDERS NOW FOR ROOT QUEENS.

Raised in our famous Home Yard, Basswood Yard, Wardell Yard, and Maple Grove Yard, by our experienced queen-breeders, Mell Pritchard, Arlie Pritchard, and John Mosgrove.

Special Contract Prices: Write immediately for special contract prices, stating quantity wanted, date of delivery desired, and whether tested or untested.

THE A. I. ROOT CO., Medina, Ohio, U. S. A.

Books and Bulletins

The following is from the "Foreword" of "North American Honey Plants," by Frank C. Pellett: "In the first volume of American Bee Journal, published in 1861, appears a plea for the publication of a volume devoted to the honey flora of America. In numerous instances since that time, writers have mentioned the great need of a work of this kind. In common with other students of beekeeping, the author came to feel this lack in our beekeeping literature. This book is an attempt to fill that need. It is to be expected that the first work on this great subject will overlook many things which should have been included and that numerous errors should creep in. In an attempt to gather the desired material the author has visited the important beekeeping regions from the Atlantic Coast to California and from Canada to Florida and Texas."

After an interval of nearly 60 years one of the present editors of the same journal has published a book to meet the need expressed by the first editor of the American Bee Journal. It cannot but occasion surprise that a book on this phase of bee culture has not appeared before; but the honey plants were and still are very imperfectly known, and the interest of the majority of beekeepers has centered perhaps too closely on apparatus and methods of honey production. Mr. Pellett has given brief but clear and interesting descriptions of all the more important North American plants, north of Mexico, valuable as sources of pollen and nectar, arranged in alphabetical order. The book is illustrated by 155 figures, which will add much to the pleasure of the reader and should greatly aid in the identification of the species. Interspersed among the descriptions of the plant are articles on pollination, pollen, nectar-secretion, honeydew, weather, etc. The more important honey plants of the different States are also enumerated.

Under the description of sage, Chadwick's statement that in 30 years the sage ranges of California will be almost a thing of the past is quoted (see page 231). This may be true for his locality. The Editor has traveled over all of California and is convinced that there is as much black and purple sage as there ever was, altho there may be less of white sage. While the acreage of sage in general may be slightly less, there are more bees and beekeepers to gather it. In a good year there will, therefore, be more sage honey produced than in former times. This opinion was confirmed by Dr. Phillips in conversation with the Editor at the recent short course in beekeeping held at Columbus, Ohio. Sweet clover is said to secrete nectar most abundantly in the hot dry climate of the plains region west of the Mississippi River. It is further pointed out by Pellett that the aid of the minor honey plants and of the pollen flowers in building up the colonies may often in a large measure determine the size of the surplus.

Few beekeepers know much about the honey plants outside of their own locality. Many are unable to distinguish the plants, which yield pollen only, from those which are nectariferous, and erroneous beliefs are often more hurtful than actual ignorance. A book of reference is a necessity and this valuable volume will doubtless give a new impetus to the study of the American honey flora. A course in botany, indeed, should form a part of the training of every young beekeeper. There are great possibilities in the study of the honey plants, and it is safe to say that they will never be neglected again as they have been in the past. Mr. Pellett is to be congratulated on the production of the first book dealing with a phase of bee culture, which the late Mr. Doolittle declared was second to no other in importance.

QUALITY QUEENS AT QUANTITY PRICES

BREED THREE-BAND ITALIANS ONLY

PRICES for 1920	Before July 1st 1	6	12	After July 1st 1	6	12
Untested	$1.75	$ 9.00	$16.00	$1.50	$8.00	$14.00
Select untested . .	2.00	10.00	18.00	1.75	9.00	16.00
Selest tested	3.00 each			2.75 each		

Queens are reared from mothers whose colonies are gentle, hardy, and as honey gatherers are hustlers. Each and every queen reared by the latest and most approved methods, thus insuring queens that are capable of duplicating the excellent characteristics of their mothers. Satisfaction and safe arrival guaranteed in U. S. and Canada. Anticipate your needs and place your order now.

HERMAN McCONNELL -:- -:- -:- -:- ROBINSON, ILLINOIS

AT SIOUX CITY, IOWA

YOU HAVE A MARKET
FOR YOUR HONEY AND
BEESWAX

WESTERN HONEY PRODUCERS
SIOUX CITY, IOWA Address Dept. C

When you have honey for sale send sample and state the price you want delivered here.

You have a stock of Lewis Beeware at your command.

Send list of your wants and lowest prices will be quoted at once.

1920 QUEENS 1920

A colony of bees with a poor queen is worth the hive and fixtures. A colony of bees with a good queen has no limit in value, the honey flow alone being the determining factor. I am using my thirty-five years of beekeeping and queen-rearing experience to produce the best that can be produced, and sell at a figure that will sustain the high quality of my queens.

PRICES

One, $2; three, $5.50; six, $10; twelve, $19. All amounts over one dozen, $1.50 each. I sell only untested queens and make a specialty of this line. I select no queens, but try to have them all so good that there is little chance for selection. 1920 circular now ready. Season opens April first.

P. C. CHADWICK KERN COUNTY DELANO, CALIF,

SOUTHERN HEADQUARTERS
THE OLD RELIABLE BREEDERS OF THREE-BANDED
ITALIAN BEES AND QUEENS

PRICES UNTIL JUNE 15

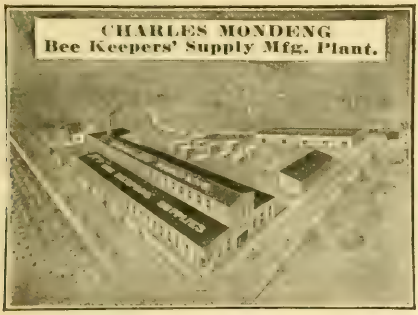
Untested queens, $1.25 each; 12, $13.25; 50 or more, $1.00 each
Select untested queens, $1.50 each; 12, $16.00; 50 or more, $1.25 each
Tested queens, $2.00 each; 12, $23.00
Select tested queens, $2.50 each; 12, $27.00
Very best breeding queen, $5.00

Prompt service, safe arrival and satisfaction guaranteed. If any of our untested queens prove to be mismated we will replace free of charge. No foul brood or other contagious bee disease has ever been in our vicinity,

Please let us have your orders now for June delivery,

W. D. ACHORD, FITZPATRICK, ALA.

$30,000 WORTH OF **Bee Supplies**



All boxed ready to ship at once, 275,000 Hoffman frames; also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will take Beeswax in Trade at
Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas
Established 1899

The Golden Tape

A golden tape is reeled before you every day. You cannot stop it, nor retard it, nor hurry it.

And having passed, no power can recall it.

It is absolutely free. You can coin every inch of it and use the coin, or you can let it roll by, untouched by your effort.

It travels fast, and no man yet has coined his full quota.

What is your average?

The golden tape is TIME.

—*H. A. Nelon.*

Are You Prepared?

Are you ready, Mr. Beekeeper, to coin the valuable days of flower bloom? They will be here before we realize it. Are you prepared, and ready with sufficient excess supplies, and with the new foundation? Have you enough sections and frames?

We are anxious to serve you in all departments of your work. We are so located as to be able to give you unusually prompt and direct shipments. Let us help you coin the golden tape. We solicit your business and guarantee to satisfy you. Use us.

The A. I. Root Co. of Iowa
Council Bluffs, Iowa

Get Churn Free

Make more and better butter. Over 25.000 Leader Churns sold. 7,000 testimonials. A. N. Hollis, says: "Churning was a burden until we got the Leader. Now the children cry to churn. We churn in 3 or 4 minutes." Leader Churns built to last lifetime—light weight—easily cleaned.

Churns in 3 Minutes

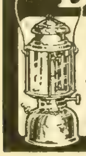
Sold under two plans—1st. Simply order Churn; pay after 30 days trial; 2nd. Take orders from your friends — your commission quickly pays for Churn, thus you get your Leader Churn FREE. ORDER NOW.

☐ 3 Gal. $5.90 Churns 2 Gallons ☑ 5 Gal. $6.40 Churns 3 Gallons ☐ 8 Gal. $6.90 Churns 4 Gallons

Send No Money Order direct from this adv. checking size of Churn wanted. You pay express charge only.

AGENTS WANTED—take trial orders; no money needed.

Novelty Mfg. Co., Box 806, Abingdon, Ill.



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A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** THE BEST LIGHT CO.
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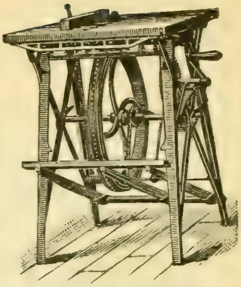

BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
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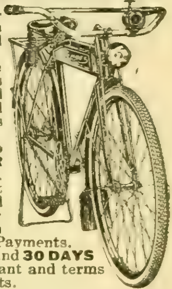

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Immediate possession on our liberal **Easy Monthly Payment** plan—the most liberal terms ever offered on a high grade bicycle.

FACTORY TO RIDER prices save you money. We make our bicycles in our own **new model factory** and sell direct to you. We put real quality in them and our bicycles **must** satisfy you.

44 STYLES, colors, and sizes to choose from in our famous **RANGER** line. Send for big beautiful catalog.

Many parents advance the first payment and energetic boys by odd jobs — paper routes, delivery for stores, etc., **make the bicycle earn money** to meet the small monthly Payments.

DELIVERED FREE on Approval and **30 DAYS TRIAL.** Select the bicycle you want and terms that suit you—cash or easy payments.

TIRES lamps, horns, wheels, sundries and parts for all bicycles—at half usual prices. **SEND NO MONEY** but write today for the big new catalog, prices and terms.

MEAD CYCLE COMPANY Dept. F153, Chicago

BEEKEEPERS' SUPPLIES

QUALITY AND SERVICE

Now is the time to order your season's supply of Bee Material so as to have them ready for the honey flow. For lack of hives and other goods, you cannot afford to let your bees fly away. *Bees are valuable.* We have every thing required for practical beekeeping. Our goods for Ideal of quality, quality of workmanship. Our 1920 catalog is now ready to send out; send for one. It is full of good stuff.

AUGUST LOTZ COMPANY -:- BOYD, WISCONSIN

QUEENS THAT PLEASE

This is my fifth year of queen-rearing at Penn, Miss. During these years I have produced thousands of queens that have been bought by beekeepers thruout the United States and many foreign countries. My queens in the past have given universal satisfaction. This year I am under my own management, and am more than ever capable of pleasing you. If you have never bought queens here you should, and a trial order will convince the most skeptical. There's a reason why I have reared more queens in a single season than any other queen-breeder. You must be pleased or your money will be cheerfully returned. Prices are as follows:

	Before July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12
Untested	$2.00	$ 8.50	$15.00	$1.25	$ 6.50	$11.50
Select Untested	2.25	9.50	16.00	1.50	7.50	13.00
Tested	3.00	16.50	30.00	2.00	10.00	18.50
Select Tested	3.50	19.50	35.00	2.75	15.00	27.00

Terms strictly cash, fourth with order, balance before shipping. Safe arrival guaranteed. U. S. inspected.

JENSEN'S APIARIES -:- -:- -:- -:- PENN. MISSISSIPPI

Established 1885

Write us for catalog.

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ALWAYS ON TOP

The Kind You Want and The Kind That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co's brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting orrepairs. Guaranteed rot, fire, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 583

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.
THE EDWARDS MFG. CO.,
[illegible] Pike St., Cincinnati, O.

FREE Samples & Roofing Book

Florida Queens and Bees

I will be fully ready to begin shipping bees and queens by April the 1st from my very best Italian stock at these prices: Two-frame nucleus with untested queen, $6.00. Untested queens, $1.50; tested, $2.00.

Beekeepers' Supplies

I have a large and complete stock and prices are right. Get prices of my Cypress hives and hive parts, made of good soft Southern Cypress.

Dixie Beekeeper

This monthly publication deals with beekeeping and Dixie for beekeeping.

A sample copy free

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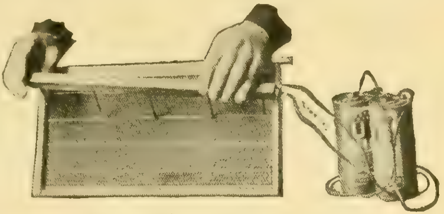
Electric Imbedder



Price without Batteries, $1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers **Hamilton, Ills.**

H. D. MURRY BAUGHN STONE

MURRY & STONE

ROUTE 1 MANCHESTER, TEXAS

will rear the well-known Murry Strain of 3-banded Italian Queens at the following

Prices	1	6	12
Untested	$1.50	$ 8.00	$14.50
Tested	2.50	12.00	22.00
Select tested..	3.00	16.50	30.00

Breeders, 5.00 to $10.00

A limited number of 2-frame nuclei with untested queens at $6.50 each, f. o. b. our shipping point. Safe arrival at your express office guaranteed. Some of this strain of bees stored 375 pounds of surplus honey per colony in 1919.

WE BUY

BEESWAX

THE
L. D. CAULK CO.
MILFORD,
DELAWARE

Bee Supplies

FALCON LINE
BEST GOODS MADE

Get our big discount
sheet before buying

C. C. Clemons Bee Supply Co
132 Grand Ave. Kansas City, Mo.

HONEY-MAKING, MONEY-MAKING

ITALIAN QUEENS

Untested	$1.50 each;	25 or more, $1.35
Tested	2.50 each;	25 or more, 2.25
Select tested, each		3.00

Circular free. All letters answered promptly and cheerfully.

R. V. STEARNS, BRADY, TEX.

WHEN YOU THINK OF BEEKEEPERS' SUPPLIES

THINK OF INDIANAPOLIS

We carry a complete line of Root's goods and we solicit your trade. Our slogan: Courteous treatment and prompt service. Catalog for the asking.

THE A. I. ROOT COMPANY (Indianapolis Branch) 873 MASS. AVE.

THAGARD'S ITALIAN QUEENS

BRED FOR QUALITY.

My Three-band queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

Untested	$1.50	6, $7.50	12, $13.50
Select Untested	$1.75	6, $9.00	12, $16.00

I guarantee pure mating, safe arrival, and perfect satisfaction, circular free.

V. R. THAGARD -:- -:- GREENVILLE, ALABAMA

DON'T FORGET!

We can supply bees and queens at attractive prices. Queens are bred from celebrated Pritchard stock. Improve your apiary with some of the vigorous young stock with which we can supply you.

We are now able to supply you with our new process foundation. Being the originators and developers of comb foundation it is perfectly fitting that we should now bring out this superior product. Try other makes; *then try ours*—and you never have any other.

SUPPLIES

We can furnish you with anything and everything, prices consistent with the high quality of the goods, all things considered.

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OF CALIFORNIA

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WRITE to us today and get all the facts of our Convenient, Safe, and Profitable plan of Banking by Mail, at 4 per cent. Unquestioned safety is assured, and small deposits invited.

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AM NOW BOOKING ORDERS FOR

MICHIGAN-BRED QUEENS

THREE-BANDED ITALIANS ONLY

TESTED DISEASE-RESISTERS

PRICES	June 15 to July 15			July 15 to Oct. 1			
	1	6	12	1	6	12	100
Untested	$1.50	$8.00	$15.00	$1.30	$7.50	$13.50	$110.00
Select Untested	1.75	9.00	16.00	1.60	8.00	14.00	115.00
Select Tested any time after June 20				3.00	16.00	29.00	
Select Day-old Virgins after June 1				.60	3.50	6.50	50.00

All queens hatched in nursery cages, and any inferior ones are killed. All queens mated in two-frame or three-frame nuclei. No baby nuclei in yard. Books opened April 1. If you are going to need *good* queens this summer, now is the time to order them.

D. A. DAVIS 216 GREENWOOD BIRMINGHAM, MICH.

Take a Tip from Me, Beginners

Write for Red catalog and "Simplified Beekeeping." Order at once.

I've used "falcon" queens and bee supplies over 20 years. Always had luck with them. My advice to you is: "Let "falcon" supplies start you on the right road. Swarms of successful apiarists say the same thing.

For over 40 years "falcon" supplies have been marketed wherever high quality is recognized. Experienced beekeepers buy them year in and year out.

W. T. FALCONER MFG. COMPANY
Falconer, N. Y., U. S. A.
Where the Best Beehives Come From

APACHE MILL
NO 1
CLARKSVILLE TENN.
U.S.A.

This Ball Bearing APACHE Grist Mill

PREPAID FOR ONLY

$8.00

FEED the hopper, turn the wheel, and enjoy making your own wholesome whole wheat or graham flour, old-fashioned corn meal, rye flour, chops and hominy, and *bring down living cost.* Best coffee and spice grinder. If you have poultry, grind your chicken feed, save feed money and get more eggs.
Apache grinding plates of special mixture iron made to give longest wear. Steel ball bearings make it only a boy's job to run it. Send money or check today. Satisfaction guaranteed. For the present we can make prompt delivery. So don't delay.

A. H. PATCH, Inc., Clarksville, Tenn.

The Apache Grist Mill is companion to the Black Hawk Corn Sheller, famous for 35 years for its "Can't Wear Out" Guarantee.

I. F. MILLER'S STRAIN

Italian Queen bees for sale. Northern-bred, for business from my best, *Superior Breeders;* gentle roll honey in, hardy, winter well, not inclined to swarm, three banded. Queens a specialty, twenty-six years breeding experience. Satisfaction guaranteed. Safe arrival in U. S. and Canada.

Untested .. $1.40; 3, $3.75; 6, $7.00; 12, $13.00
Select Unt.. $1.65; 3, $4.50; 6, $8.50; 12, $16.00

I. F. MILLER, Rt. No. 2, BROOKVILLE, PA.

Queens--Rhode Island--Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, $1.25 each; 6 for $7.00. Circular on application. Queens delivered after June 1.

O. E. Tulip, Arlington, Rhode Island
56 Lawrence Street

Advertisements Received too Late to Classify.

WANTED.—A permanent home with bees. Christian. W. Jensen, Mars Bluff, S. C.

FOR SALE.—25 colonies in 10-frame hives, Hoffman frames, good combs, inspected, $20.00 each. S. K. Blundin, Oxford Valley, Pa.

FOR SALE.—One wax press and one extractor. Good condition. $25.00 for both.
J. E. Christman, Wellston, Ohio.

FOR SALE or exchange for farm land or merchandise, building, 9 town lots, with one-half acre golden seal, shaded with bushes.
S. Pitts, Stronghurst, Ills.

FOR SALE.—Bees in 10-frame hives.
Julius Gentz, Wabeno, Wisc.

FOR SALE.—Palmetto honey in 5-gallon cans, 16c; in cypress barrels, 400-lb. capacity, 15c, f. o. b. Florida. Ward Lamkin, Arcadia, Fla.

FOR SALE.—Hardy Italian queens. One dollar each for the month of May.
W. G. Lauver, Middletown, R. D. No. 3, Pa.

FOR SALE.—Guinea Pigs. Brood sows, $2.50. Young sows, $1.50. Males, $1.00. Pleasant Hill Caviery, 1629 E. Florida St., Springfield, Mo.

FOR SALE.—Hatch wax press used once only, good as new, $10.50.
Geo. Walthousen, 3 Close St., Schenectady, N. Y.

SIMMONS.—Goldens and three bands, prize-winning strain. Also nucleus.
Allen Simmons, Claverack, N. Y.

FOR SALE.—One Root automatic reversible hand or power L. six-frame slightly used honey-extractor in fine shape at half price of new one.
M. J. Wilsey, Washington, Kans.

FOR SALE.—Best three-banded Italian queens ready June 10. Untested only, one, $1.50; 6, $8.00; 12, $15.00. Book orders now.
Ross B. Scott, LaGrange, R. D. No. 4, Ind.

FOR SALE.—Pure Italian queens, packages and nuclei. One untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.
Golden Star Apiaries, San Jose, Calif.

FOR SALE.—A bee outfit, five double-walled Root hives, supers, etc., practically new, $78 worth for $45.
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FOR SALE.—60 colonies of bees in 10-frame standard hives, run for extracted honey. Honey-extractor, wax-extractor, up-to-date outfit. Sickness my reason for selling.
J. H. Hill, Okeechobee, Fla.

FOR SALE.—Victor's Italian Queens, prompt service, courteous treatment, and painstaking effort are my inducements for your patronage. Mated, $1.25 each, six, $7.00; twelve, $13.50, from June 1 to Oct. 1. Julius Victor, Martinsville, N. Y.

WANTED.—BEESWAX. During May I will pay 40c per lb. cash for average yellow beeswax, delivered here. State quantity and quality and await reply before shipping.
E. S. Robinson, Mayville, N. Y.

FOR SALE.—I have sold my bees but still have for sale a fine equipment for production of extracted honey on large scale, a full and complete line, and in good condition. Reason for selling, am not able to work. O. H. Townsend, Lake City, Mich.

SPECIAL PRICE.—Overstock sale, on one-story 8-frame S. W. hives, shipping cases to hold 24 sections, 4¼x4¼x1½, Hoffman frames 1½-inch spacing. Modified frames, Jumbo depth, 1½-inch spacing. Ask for quotations.
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WANTED.—To hear from beekeepers wanting queens from three-banded Italian stock which for the last ten years made the largest average per colony of any bees in Indiana. All orders accepted to be filled after May 20. Untested queens, May and June, $2.00 each, 6 for $10.50.
Charles Kennard, Knightstown, Ind.

FOR SALE.—100 four-frame nucleus hives in lots of 5 or more. The frames used just fit crosswise in any regular 10-frame deep super, same holding 13 nucleus frames. Just the thing for expert or beginner. All hives have good galvanized telescope covers and are painted inside and out. All clean, in first-class condition and absolutely free of any disease. Price, empty, 75c each; with 3 frames of full drawn combs, $1.50 each, f. o. b. Marion. Write for particulars.
James W. Bain, Marion, Ohio.

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Mr. Beekeeper and anticipate your needs for the coming season and order early. Root's goods in stock at factory prices. Send for 1920 catalog.

F. D. Manchester R. D. No. 2 Middlebury, Vt.

INDIANOLA APIARY

Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, $1,00; Tested, $1.50. Nucleus, $2 per frame, queen extra.

J.W.SHERMAN,VALDOSTA,GA.

NEWMAN'S ITALIAN QUEENS

Bred from the best. No disease. Satisfaction and safe arrival guaranteed.
Untested, $1.25; 6, $7.00; 12, $13.50, Select Untested, $1.75: 6, $9.00; 12, $17.00.
Circular free.

A. H. NEWMAN, - - MORGAN, KY.

FOR SALE--THREE-BAND ITALIAN QUEENS

From best honey-gathering strain obtainable. (No disease.) Untested queens, $1.25 each; 6, $6.50; 12, $12. Select untested, $1.50 each; 6, $9; 12, $18. Tested, $2.50 each. Safe arrival and satisfaction guaranteed. Your orders filled promptly.

W. T. PERDUE & SONS Rt. 1, Fort Deposit, Ala.

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100 new standard dovetailed, 10-frame hives, never used, nailed, painted two coats white paint, one-story hives complete with Hoffman frames and full sheets foundation, $3.00 each. Also 100 extra bodies used one year as supers for extracting, with frames but no foundation, $1.00 each. All painted white and in fine condition. Cash bargain.

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Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway,
If you have not received 1920 catalog send name at once.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping-boxes, and three-frame nucleus colonies.

I. J. STRINGHAM, GLEN COVE, Nassau Co., N. Y.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England: If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

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Every seed will produce a new VARIETY of potato, some white and some red, some early and some late, no two alike, 100 or more seeds in each package. One package and three months' subscription to our Magazine, "Special Crops," regular price $1.00; special price three months and seeds, 25 cents.
PUBLISHER OF SPECIAL CROPS, SKANEATELES, N. Y.

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Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

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WE HAVE A LARGE STOCK OF ROOT'S SUPPLIES AND CAN GIVE YOU PROMPT SHIPMENT, SAVING YOU TIME AND TRANSPORTATION CHARGES. TRY US WITH YOUR ORDERS. CATALOG ON REQUEST.

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A RED LETTER DAY IN CONCRETE TOWN
CONCRETE
MAIN STREET
OK
TOY
STOP GO
DLMOK
DAC

That Sign for Your Apiary

SHOULD BE MADE THIS SPRING!

We will mail you on application a small folder on how to make your own signs by using our all-weather-proof burned clay letters. They can be used on buildings, walks, lawns or roadside.

Write for a "Red Letter Day in Concrete Town"

UNITILE
REGISTERED TRADE MARK

The Unitile Co., Columbus, Ohio
Dept. B

DOLL SAYS

don't invite Disappointments by delay in ordering your Honey Containers. Make sure of having all the Cans and Bottles you will need, by ordering them NOW. I am splendidly prepared to fill all orders for Friction Top Cans of 3 lbs. to 10 lbs. capacity—5-gallon Square Cans—and ½-lb. to 3-lb. white flint glass Screw Top Honey Bottles. Standard-grade goods, at prices that will interest you.

AN EASY WAY TO SAVE MONEY

You can save 15 per cent to 20 per cent on the cost of your Honey Cans and Bottles this year, by ordering them from DOLL—and instructing us to ship direct from factory to you.

I am also ready to make prompt shipments of anything wanted in the way of White Pine Hives, supers, extractors, Foundation, and other Supplies—none better to be had in either Style, Quality or Construction.

BE ready when the Honey begins to flow, by GETTING ready NOW.

Be sure to get my price quotations before ordering this year's Supplies.

P. J. DOLL BEE SUPPLY CO.
NICOLLET ISLAND MINNEAPOLIS, MINN.

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Wayne County, New York, ready to answer your call, the best of everything!!

Just Read This List

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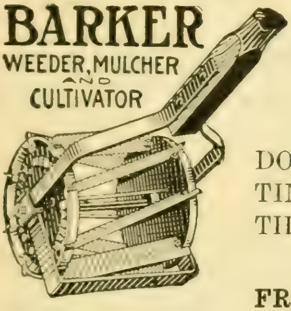

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Well, Mr. Beekeeper:

Pretty near time you sent in that order isn't it?

Summer will soon be here you know and you will want your supplies in a hurry.

We want to help you all we can. Send in your order now and we will do our part.

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Tools

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Hives

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Supers

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for

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Supplies?

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We are in the market for beeswax. Write us for prices.

If you haven't our catalog drop us a card and we will mail you one.

Try us. You will come again.

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QUEENS

FINE ITALIAN QUEENS FROM

SELECTED
BRED-UP
STOCK

Pure mating, safe arrival, and satisfaction guaranteed. Now booking orders for June delivery at following prices:

	1	12	100
Untested - - -	$1.35	$15.00	$110.00
Select Untested	1.75	18.00	150.00
Tested - - - - -	2.50	24.00	200.00

A few more
PACKAGE BEES
for late May and early
June delivery.

E. A. HARRIS, ALBANY, ALA.

QUEENS

FROM SELECT BREEDING

Twenty Years of Experimenting. We have nothing but the very best.

3-Band Only

Price Cash With Order
Before July 1st

Untested - - - - - -	$2.00
Selected - - - - - -	2.25
Tested - - - - - -	3.00
Selected - - - - - -	3.50

Orders filled in rotation.
Write for prices in large quantities,

Did you get what you were looking for when you bought your last year's Queens? If not, try one that will please you. My queens are reared on a new system, large and prolific, surpassed by none but superior to many.

F. M. RUSSELL
ROXBURY, OHIO R. F. D. No. 2

QUEENS
OF QUALITY

FARMER'S QUEENS SPEAK FOR THEMSELVES.

Mr. Beekeeper, why not get a good queen while you are buying? Farmer's queens produce workers that fill the supers quick with honey that is most delicious to eat. They are bred for honey production strictly. Shipping season is here; now is your time to head your colonies with a good queen; one that will keep the hive chock-full of bees at all times, makes the biggest yields of honey, sting less and look the prettiest. Our strain of Italians will go a long distance after nectar; in a high degree they are very resistant to disease, gentle and beautiful, not given to swarming, hardy, long-lived. We breed from imported stock from Italy, the very best obtainable for honey-gathering; they are known thruout the world; they don't need any recommendation.

PRICES FROM APRIL TO JULY:

	1	6	12	100
Untested	$1.50	$7.50	$13.50	$1.00 each
Select untested	1.75	9.00	16.50	1.25 each
Tested	2.50	13.00	24.50	2.00 each
Select tested	4.00	22.00	41.50	3.35 each

Guarantee? You take no risk when you buy our queens. We guarantee them to reach you safely, to be purely mated, and we leave the word satisfaction entirely to purchaser; he is the sole judge. Why we do this is because we know what we are going to send out. If they don't prove up to your satisfaction, return them and your money will be refunded. Shipments made on time. Reference to our standing: Bank of Ramer, Ramer, Ala.

The Farmer Apiaries . . . Ramer, Alabama

"Where the Good Queens come from"

Forehand's Three Bands

THE THRIFTY KIND

We have been breeding these queens for the market for over a quarter of a century. They are bred from the imported Italians, but after years of select breeding we have brightened the color and retained the good qualties of their mothers.

After years of select breeding we have built up a strain of bees that are surpassed by none but superior to many. Our queens are thrifty, hardy, gentle, and beautiful.

PRICES

After April 1, to July 1

Kind	1	6	12	100, each
Untested	$1.50	$7.50	$13.50	$1.00
Select Untested	1.75	9.00	16.50	1.25
Tested	2.50	13.00	24.50	2.00
Select Tested..	4.00	22.00	41.50	3.35

Pound Bees from April 15 to June 30

Size	1	25 or more
One-pound package..........	$3.00	$2.75
Two-pound package..........	5.00	4.60
Three-pound package........	7.00	6.45

Add the price of the queen wanted.

We guarantee pure mating, safe arrival and satisfaction.

W. J. FOREHAND & SONS -:- FORT DEPOSIT, ALA.
THE BEE MEN

QUEENS Package Bees *QUEENS*

Did you read Prof. H. F. Wilson's write-up in the March issue of Gleanings, in regard to the packages of bees he received from me last year? Notice he said some of those

PACKAGES RECEIVED IN MAY GAVE 150 LBS. OF HONEY

That speaks for the quality of our *queens*. The 2-pound packages with Queens shipped to Mr. David Running (then President of the National Beekeepers' Association) in 1917, three years ago, gave him 140 pounds that season. Have booked all I can guarantee shipping on time for April, but send for *Free Circular* for later shipping which states our guarantee, also gives prices on bees by parcel post, Nuclei, etc.

THREE-BANDED AND GOLDEN QUEENS.

Have secured the best queen men obtainable and we are prepared to turn out 6,000 queens per month. They do nothing but rear the best of *queens*; careful inspection before shipping. Have an entirely separate crew for shipping bees, etc. Twenty years a beekeeper.

Prices f. o. b. Here, by Express.

1-lb. pkg. bees, $2.40; 25 or more... $2.16
2-lb. pkg. bees, 4.25; 25 or more... 3.83
3-lb. pkg. bees, 6.25; 25 or more... 5.62

Queens.

Untested, $1.50 each; 25 or more.... $1.35
Tested, $2.50 each; 25 or more...... 2.25
Select tested, each................. 3.00

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALALLEN, TEXAS
E. B. AULT, Prop.

Modified Dadant Hive

The Modified Dadant Hive has 40 per cent larger Brood Comb Area than the Ten-Frame Langstroth Hive.

A glance at this illustration shows you why the Modified Dadant hive should be in your apiary. See the large size compared with the 10-frame " Standard !" Features embodied in this hive are:

1. A deep frame.
2. A large brood-chamber in one story.
3. Ample ventilation by wide frame spacing.
4. Excellence in wintering.
5. Swarming easily controlled.

Modified Dadant Hive Features

1. **Eleven frames, Langstroth length, Quinby depth.**
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5. **Langstroth "standard" equipment easily used with it.**

Made by G. B. Lewis Company

SOLD BY DISTRIBUTORS OF LEWIS "BEEWARE"

For free booklet write either to

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Dadant & Sons, Hamilton, Illinois

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for

Rocky Mountain Beekeepers

We want to enter into agreements with all the responsible beemen in the Rocky Mountain territory to market their honey. But we will not accept business unless we are sure we can handle it properly. We are constantly extending and improving our ways of distribution.

Service is what you want, and we stand ready to serve you. Our service includes Honey Marketing, Market Bulletins, special advances on your honey crops and on your honey in storage, selling bee supplies at a low fixed profit, cash for your crop as soon as shipped, pools, etc.

If you have some honey on hand at the present time and want to market it before the new crop comes on, let us hear about it. We would like a letter from every producer in Colorado, Wyoming, Utah, Idaho, and New Mexico. Bring us your latest beekeeping problem; let us give you prices on supplies and honey containers; write about extending your business; we will be glad to serve you in any way. We handle Root's Quality Bee Supplies.

Service First and All the Time. Rather than judge us by our promises, judge our ability and the honesty of our intentions by our past. Ask the men who have been dealing with us. Our organization stands for two things: First, bigger, better, and more profitable beekeeping. Second, building a national demand for honey as an everyday food.

We want to express publicly our appreciation of our many customers who have been dealing with us so satisfactorily in the past and who are coming back to us with their valued business this year. It is their confidence and support that have made our growth possible. They can tell you that Wesley Foster did not have a beekeeper dealing with him in 1917, 1918, or 1919, that carried over any honey. We ask that you refer to the Nat. State Bank of Boulder, Colo., or to any Mercantile Rating Agency as to our financial strength and business integrity. We have unlimited confidence in Beemen, and we want them to feel the same confidence in us.

To

FOSTER Your Business

Is a Very Wise Thing

The Foster Honey and Mercantile Co.

Boulder, Colorado

CONFIDENCE

Riverton, Wyo., Jan. 31, 1920

The A. I. Root Company
Medina, Ohio.

Gentlemen: I am writing you regarding the coming crop of honey. I feel that I am entitled to a first chance to sell you my crop, for I buy almost everything I use in my business in the bee line of you. I will ship you my entire crop of honey at the market price or a price we agree upon. I have 1,000 colonies, and if I have a fair crop I should have from 100,000 to 150,000 lbs.

There is one other reason I am writing you at this date, and that is I am counting on being up in Alaska and Yukon territory when my crop of honey is being harvested, and I feel that I can absolutely trust The A. I. Root Company for fair dealing and honesty whether I am in Alaska or at home.

Yours truly,
B. M. Caraway.

"SAG-PROOF" FRAMES

Stop losing dollars from sagged brood-combs!
Use frames wired to support combs properly.
Follow the lead of America's best beekeepers.
Use Lewis "Sag-Proof" frames in your hives.

HOW THEY ARE MADE.

Expensive machinery installed in the Lewis "Beeware" factory pierces Hoffman end bars so the wiring holes come nearer the top bar and give support where it is most needed—at the top.

Principles involved in this improvement have been approved from actual samples sent to and used by such leaders as Frank Rauchfuss, G. S. Demuth, J. E. Crane, A. G. Woodman, E. G. LeStourgeon, N. E. France, Ben Davis, H. D. Murry, E. S. Miller, F. B. Paddock, H. F. Wilson, G. H. Rea, E. G. Baldwin, and the Dadants.

Dr. C. C. Miller, after examining samples sent to him, wrote: "The new wiring, as compared with the old wiring with the upper wires farther apart, ought to be worth many dollars to the business of honey production."

Get in line and use Lewis "Beeware" now. "Sag-proof" frames are just one instance of our interest in your beekeeping success. Your catalog gives your distributor's name.

Look for

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WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. U S A
MAKES THE FINEST.

This Mark

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Branches and Distributors Everywhere

WATERTOWN WISCONSIN

Write for booklet, "How to Manage Bees in Spring," price 5c.

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Gleanings
in
Bee Culture

Under the Peach Trees in Tennessee

VOL. XLVIII June, 1920 NUMBER 6

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BEEKEEPERS' SUPPLIES

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MILLER'S CALIFORNIA FOUNDATION

Send us your wax and slumgum.

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A Complete Line. Your Orders Solicited for

Friction-Top Cans and Pails

Five-gallon Square Cans
with Screw or Solder Cap

Packers' Cans
Open Top or Hole and Cap Styles

Wax Sealing Preserving Cans

Unexcelled manufacturing and shipping facilities.

W. W. Boyer & Co., Inc.
Baltimore, Maryland

"Griggs Saves You Freight"--Toledo

May is here, and the good familiar song of the Honeybees in the fruit bloom with it. Just one more month and the great honey harvest will be upon us, but the question is will you be prepared? Don't lose the best of the crop, because you waited to get your supplies. Order them today, and from TOLEDO, the most direct line to you in the country, and shipments go forward promptly, and at factory prices.

LIVE BEES IN 3-LB. PACKAGES WITH QUEEN.

If you have lost any bees the past winter, let us send you some of our 3-lb. packages next month to replace them, and save those good combs from the moth worm; besides, bear in mind one package will pay for 3, and the 3-lb. package is the most profitable to buy. Only a limited number to spare so order today.

NEW AND SECOND-HAND HONEY CANS.

We have a good stock of both new and second-hand cans. Our second-hand cans have only been used once, and are nice and bright inside, and in good reshipping cases; they are as good as new and only one-half the price of new; they are going fast; so don't delay, order today.

BEESWAX—BEESWAX.

We have an unlimited demand for good, first-class wax and will pay highest market price for all grades, but for Fancy Yellow Wax we will pay a premium over the market price. Write us how much you have and price wanted in first letter.

Free Catalog and Special Bee Price List.

We want every beeman to have our catalog, and your name and address upon a postal will bring it. Write today.

THE GRIGGS BROTHERS CO. Dept. No. 25 TOLEDO, O.

"Griggs Saves You Freight"

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Editorial Staff

E. R. ROOT	A. I. ROOT	IONA FOWLS	H. G. ROWE
Editor	Editor Home Dept.	Assistant Editor	Managing Editor

Order Your Bee Supplies Now

NOW is the time to check up on your hives and accessories to make sure that everything is complete and in perfect condition for the coming season. Our complete line of Bee Supplies includes everything needed by the modern Beekeeper. Besides our own exclusive articles, we are distributors for the famous Lewis Beeware line, and dealers in Root's Extractors and Smokers, and Dadant's Foundations. Orders placed now can be filled promptly. Prices on many articles are sure to advance within the next few months. Send for our large 1920 Catalog today.

Beeswax Rendered from Old Combs

WE pay you the highest market price for rendered wax, less 5 cents per pound rendering charge. Our special hydraulic steam wax press gets the very last drop of wax from old combs and cappings assuring you maximum profit on them. Write for full particulars.

Best Prices Paid for Honey

SEND us samples of your honey and we will quote you a price equal or better than that of any other concern. We buy and sell both comb and extracted honey. Cash remitted in full the same day shipment is received.

Send for Our Large New 1920 Catalog

THIS new catalog contains over 40 pages of every variety of Beekeepers' Supplies, including all the latest and most improved devices. It is really a valuable reference book on beekeeping accessories. -:- -:- -:- -:- -:- -:-

Tin Rabbets,
Hives, all sorts
Extractors

Foundation, Dadant's
Root's Smokers
Excluders, all makes
Division Board

Wax Extractors

Metal Spaces
Uncapping Knives
Tin Tacks
Honey Boards

Covers for Hives
Observation Hives

THE FRED W. MUTH CO.
"THE BUSY BEE MEN"
CINCINNATI, O

SUPERIOR FOUNDATION
ASSURES SUPERIOR QUALITY

Hundreds Pronounce It "Best by Test."

OUTPUT DOUBLED. The enormous demand for SUPERIOR FOUNDATION has required the doubling of our manufacturing facilities. We have doubled our Ogden factory in size for 1920, and have also added sufficient new machinery to double our output of foundation. We now occupy over 20,000 square feet of floor space with our enlarged factory of three floors, and invite you to visit us whenever in Ogden.

THERE'S A REASON for this rapid growth. Acquaint yourself with the superiority of our product. Every pound we manufacture is backed by our reputation for highest quality and square dealing.

BEESWAX ARRIVALS during the past thirty days have been very liberal, but we still require additional quantities at highest market price.

OUR BEE SUPPLY DEPARTMENT is humming. We can fill your order for "Everything in Bee Supplies." Prices on request.

Superior Honey Company -:- Ogden, Utah

(MANUFACTURERS OF WEED PROCESS FOUNDATION)

BEE SUPPLIES BEE SUPPLIES

SERVICE & QUALITY

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog—better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & COMPANY

2146 CENTRAL AVE. CINCINNATI, OHIO

HONEY MARKETS

The honey market is not unlike the sugar market—the price is high and that price is what can be got for it from day to day. The demand is good and likely to stay good as long as the price of sugar continues to skyrocket. The Government market quotations are given below:

U. S. Government Market Reports.

SHIPPING POINT INFORMATION—MAY 14.

LOS ANGELES, CALIF.—Demand good, movement limited, market active, prices slightly higher. Old honey practically exhausted, no new stock yet on market. Carloads f. o. b. usual terms: Fancy white sweet clover 20c, light amber sage 18½c, light amber alfalfa 18c.

SAN FRANCISCO, CALIF.—Demand and movement good, supplies light. Prices paid to beekeepers, per lb.: Light amber alfalfa 15¾-16c, orange blossom 17½-18c. Beeswax, 40-41c.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(In many markets the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding 2 weeks. Prices are for May 14.)

BOSTON.—No arrivals reported since last report. Supplies moderate, demand good, movement moderate, market firm. Sales to jobbers, extracted, California sage 22-23c per lb. Comb, New York, 24-section cases white clover $8.00-8.50.

CHICAGO.—Receipts very light, supplies light, demand and movement good, market firm. Sales to jobbers, extracted, Montanas, Californias, Ohios, and Minnesotas, white mostly 22c, light amber 19½-20½, dark amber 19-20c. Comb, supplies practically exhausted, no sales reported. Beeswax: Since last report, approximately 3 tons imported from South America, domestic receipts light. Supplies moderate, demand and movement good, market steady, little change in prices. Sales to jobbers, per lb., Montana, Colorados, and Californias, light 45-46c, dark 42-44c. Imported, light mostly 40c.

CINCINNATI.—4,400 lbs. from Nebraska arrived since last report. Supplies light, demand good, movement limited, market firm. Sales to jobbers, per lb., extracted, Western white 20-21c. Beeswax: Supplies light, demand and movement moderate, market steady. Sales to jobbers, per lb., average yellow 43-46c.

CLEVELAND.—Supplies very light, demand good on account of sugar shortage and old stock practically exhausted, few sales. Sales to jobbers, per lb., extracted, Western 60-lb. cans light amber and white sage 20-25c.

KANSAS CITY.—No arrivals since last report, supplies light, demand and movement moderate, market steady. Sales to jobbers, comb, Western 24-section cases light mostly $7.50. Extracted, per lb., Western light amber 18c, dark 16c.

MINNEAPOLIS.—No carlot arrivals; no cars on track. Supplies moderate, receipts heavy, market steady. Sales direct to retailers: Western, comb, No. 1, white 24-section cases $7.50. Extracted: 60-lb. cans light amber 21-22c per lb.

NEW YORK.—No domestic arrivals reported since last report. Supplies very light, demand moderate, market firm. Sales to jobbers and large wholesalers: Extracted, Domestic per lb. Californias, light amber, alfalfa and white orange blossom mostly 19-20c, few 21c, light amber sage 21-22c. Imported: West Indies, refined mostly $1.85-1.90 per gallon, Chilean light amber alfalfa 18½c per lb. Comb, no supplies. Beeswax, no domestic arrivals reported since last report. Supplies light, demand light, movement draggy, market dull and weak. Sales to jobbers and large wholesalers: South American and West Indies, refined light 42-44c, few 45c, dark 30-33c, domestic refined light 44-45c; African refined light 31-32c, dark 28-30c, few 31c.

PHILADELPHIA.—No arrivals since last report. Demand and movement good, market stronger. Sales to jobbers: Extracted, per gallon, Floridas, fancy light $1.90-1.95, Southern amber $1.88-1.93.

ST. LOUIS.—No carlot arrivals since last report. Supplies light, demand and movement slow, market dull. Sales to jobbers, per lb., extracted, 60-lb. cans light amber 16-17c, dark 15-16c. Beeswax, almost too few sales to establish market, 38-39c per lb.

ST. PAUL.—No carlot arrivals since last report. Supplies light, demand and movement light, market steady. Sales direct to retailers: Comb, Western No. 1 white 24-section cases $7.25-7.50. Extracted, too few sales to establish market.

George Livingston,
Chief of Bureau of Markets.

Special Foreign Quotations.

LIVERPOOL.—Since our last report the market has been very dull. The recent inquiries for quantity have not resulted in any bids being made. We calculate the value of extracted honey in American currency to be about 12½ to 13 cents per lb.

The market for East African beeswax is very dull. The value in American currency is about 35 to 36 cents per lb. Taylor & Co.

Liverpool, England, April 27, 1920.

CUBA.—We quote honey here at $1.20 to $1.25 per gallon; wax $36.00 per quintal, 100 lbs.

Adolfo Marzol.

Matanzas, Cuba, May 6, 1920.

Opinions of Producers.

Early in May we sent to actual honey-producers the following questions:

1. In your opinion about what per cent of colonies in your State were lost during the winter and spring?
2. How does the present condition of colonies compare with the usual condition at this time of the year? Please report as very poor, poor, normal, good, or very good.
3. What is the condition of honey plants in your State?
4. What is your opinion of the crop prospects in general?

Answers, as condensed by the Editor, are as follows:

IDAHO.—Loss 7 per cent. Colony condition very good. Plants fair. Prospects fair.—E. F. Atwater.

ILLINOIS.—Loss 25 per cent. Colony conditions normal. Plants good but late. Prospects good.—A. L. Kildow.

INDIANA.—Loss 50 per cent. Colony condition poor. Very little clover. Prospects poor.—E. S. Miller.

IOWA.—Cellar-wintered loss 5 per cent, wintered outside 40 per cent. Colony condition rather poor. Clover badly killed. Prospects fair to good.—Frank Coverdale.

MARYLAND.—Loss 25 per cent. Colony condition late in building up. Plants normal but late. Prospects fair.—S. G. Crocker, Jr.

MASSACHUSETTS.—Loss 25 per cent. Colony condition normal. Plants fine. Prospects good.—Omer M. Smith

MINNESOTA.—Loss 30 per cent. Colony condition very poor. Plants very good. Prospects fair or normal.—Chas. D. Blaker.

MISSOURI.—Loss 10 to 15 per cent. Colony condition poor. Plants very good. Prospects good.—J. W. Romberger.

MONTANA.—Loss 25 to 30 per cent. Colony condition very weak. Not a blossom yet (May 12.)—Clark W. Allen.

NEW JERSEY.—Colony condition low. Plants about normal.—Harry B. Weiss.

NEW YORK.—Loss 50 per cent. Colony condition poor. Plants good. Prospects fair.—G. H. Rea.

NEW YORK.—Loss 40 per cent. Colony condition very poor. Plants good. If drouth continues, prospects very poor.—Adams & Meyers.

NEW YORK.—Loss about 20 per cent. Colony condition poor. Plants good. Prospects good.—F. W. Lesser.

NEBRASKA.—Loss 50 per cent. Colony condition poor. Plants good. Prospects good.—F. J. Harris.

OHIO.—Loss 50 per cent. Colony condition poor. Plants fairly good. Prospects fair.—Fred Leininger.

OKLAHOMA.—Loss 15 per cent. Colony condition poor. Plants good. Prospects fair.—C. F. Stiles.

ONTARIO.—Loss between 20 and 30 per cent. Colony condition poor. Plants generally good. Prospects generally good.—F. Eric Millen.

PENNSYLVANIA.—Loss 50 per cent. Colony condition poor. Plants backward. Prospects fair. —Harry W. Beaver.

UTAH.—Loss 50 per cent downward in Duchesne County. Colony condition bad. — W. J. Harvey.

WASHINGTON.—Loss 3 to 5 per cent. Colony condition good. Plants normal. Prospects good. Geo. W. B. Saxton.

WISCONSIN.—Loss 20 to 25 per cent. Colony condition poor. Plants very good. Prospects good. —H. F. Wilson.

The questions sent to producers in California and Florida were different from those sent to the other States, and are as follows:

1. How does the present condition of colonies compare with the usual condition at this time of the year? Please report as very poor, poor, normal, good, or very good.
2. What is the condition of honey plants in your State?
3. About what per cent of the crop is already harvested?
4. Has as much honey been harvested as usual at this time of the year?

The answers are as follows:

CALIFORNIA.—Colony condition about normal. Plants, small crop. About 50 per cent of honey crop harvested. Up to date bees have done well.— R. E. Lusher.

CALIFORNIA.—Colony condition very poor. Plants only fair. None of the crop harvested.— M. H. Mendleson.

CALIFORNIA.—Colony condition normal. Plants good. Ten per cent of crop already harvested, which is as much as usual.—L. L. Andrews.

FLORIDA.—Colony condition normal. Plants poor. Ten per cent of honey already harvested, which is not as much as usual.—Ward Lamkin.

Advertisements Received too Late to Classify.

FOR SALE.—Bees, 2-lb. packages, $4.50; untested queens (Gleanings Code), $1.50. No foul brood known within 100 miles.
S. T. Crawford, R. D. No. 1, Glendale, Ariz.

IT PAYS BIG to advertise right. How is your Bill Board Service? Let me give you estimates on 9'x18' Bill Board sketches and drawing in miniature or full size. Paint on yourself, or comes ready to nail in position. If interested, write for prices and particulars. Henry A. Schaefer, Osseo, Wisc.

FOR SALE.—20 10-fr. dovetailed hive bodies with H. frames, good condition, $25.00; 10 gable covers, canvas covered and inner covers, 10-fr., $8.00; 10 reversible 10-fr. bottoms, $7.00; 10 10-fr. Root 4x5x1⅜ comb supers with sections, new, never used, $21.00; 10 Root queen-mating nuclei, $15.00; 50 10-fr. wood bound zinc excluders, $15.00; 1 Alexander honey strainer, new, never used, $6.00; 500 4x5x1⅜ sections, $4.50; 15 lbs. thin super fdn. for 4x5 sections, $11.00; 1 Root section press, new, $1.75; 2 10-in. Root uncapping knives, new, $2.00; 1 Peterson capping melter, little used, painted, $14.00; 1 separating can good as new, $3.00; 150 lbs. Dadant medium brood fdn. in 50-lb. boxes, per box, $34.00; 1 good pick-up cart, $5.00; 10 Miller feeders in good condition, $3.50. Goods sold only as listed, f. o. b. here, 10 per cent with order, balance on arrival. Hive parts listed are set up and painted. All goods guaranteed as advertised. Absolutely no disease.
Wm. Gabriel, Scribner, R. D. No. 3, Nebr.

Special Notices by A. I. Root

LATEST FROM THE FLORIDA ANNUAL SWEET CLOVER.

On page 362 I tried to give you a picture of my little clover plants. Well, a second photo, taken *only 17 days later*, shows the little plant almost up to the top of the yardstick, and branching out accordingly, having made the enormous growth of *full 20 inches* in this short time. Picture in next issue.

THE ROYAL PALM NURSERIES, ONECO, FLA.

Should you make a trip to Florida, especially if you plan to visit the southwest coast, don't fail to take in the Reasoner nurseries. Even if you don't take the trip, but are curious to know what can be grown in Florida, not only out in the open air, but also with proper protection, you had better send for their beautiful new catalog. The part of the catalog devoted to new and up-to-date Florida fruits, was of especial interest to me, in several ways.

"DAILY BREAD."

The article on page 365 was intended for the May Gleanings, but room was not found for it. However, this same process can often be used to advantage in the month of June. If you have some ground that is not yet ready for potatoes, or some ground that will be ready after another crop has been cleared off, start your potatoes in a bed of very rich soil as I have described, and have them in such shape that when the ground is ready they will just start out under "high-pressure gardening."

SEED OF THE NEW ANNUAL WHITE SWEET CLOVER.

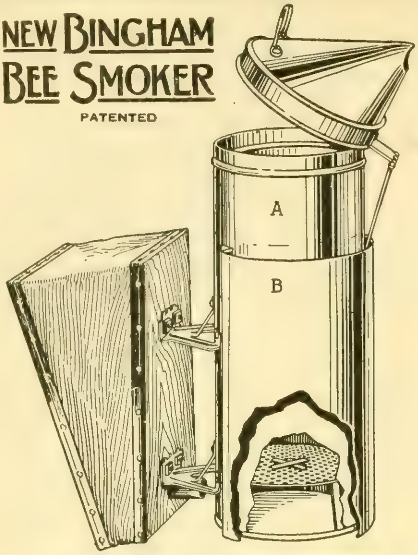
On page 236, April issue, I said I did not know of any one in the whole wide world who had any of this seed that could be furnished, except one, and that was the Henry Field Seed Co.; but they inform us, May 1, that they are completely sold out. Now, I do not know whether the station at Ames, Iowa, is still sending out small packets or not. In this issue you will notice they have been having a tremendous call. Well, at the present writing, May 12, we have enough for 500 or 600 packets, giving each applicant a packet of perhaps 15 or 20 seeds. These will be sent to any one who will send an addressed stamped envelope, so long as the seeds last. After that we will hold your envelope for seeds that I expect will be ready to be gathered in Florida some time in June or July.

OVER 1,000 BUSHELS OF POTATOES FROM ONE ACRE OF LAND GROWN LAST SEASON.

The man who performed this wonderful feat in agriculture is C. Norgate of Dryden, Ont., Canada. He is a beekeeper; and, by the way, he is a successful beekeeper, and so, of course, he is a good man, and his statement is straight and honest. Furthermore, he sent me two photographs of the potatoes as they lay in the field at the time of digging. The variety is a type of the Green Mountain that he has developed by careful work for years past. He sent me last fall a couple of pounds by mail, and in my Florida home I grew over two bushels from the two pounds, and got the first premium (something over $5.00) at the Manatee County Fair. They were certainly the most beautiful potatoes I ever saw. In fact, a basketful looked like a basket of newly laid eggs, they were so white and smooth and clean— not a sign of blight, fungus, or anything until the frost came and cut off my crop. I think Mr. Norgate makes a business of growing seed potatoes that in a remarkable manner resist blight, fungus, and disease of every sort. I do not know his prices, but probably you can get them by writing him. We expect to give, in our next issue, a valuable letter from him in regard to the success he has had with his bees as well as potatoes.

NEW BINGHAM BEE SMOKER

PATENTED

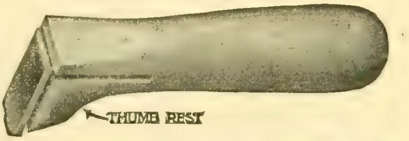


The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey producers in the World. It is now made in five sizes.

Postage extra	Size of stove inches	shipping weight lbs.	price
Big Smoke, with shield	4 x10	3	$2.50
Big Smoke, no shield.	4 x10	3	2.00
Smoke Engine	4 x7	2¼	1.50
Doctor	3½x7	2	1.15
Conqueror	3 x7	1¾	1.00
Little Wonder	3 x5½	1½	.80

Smoke Engine or Doctor, in copper, $1.00 extra.

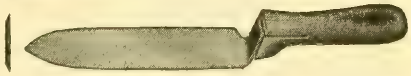
The Big Smoke has just been produced in response to a demand for a larger-size smoker, one that will hold more fuel, require filling less often, from extensive bee handlers.

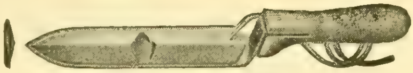


East Lansing, Mich., May 10, 1920.
A. G. Woodman Co., Grand Rapids, Mich.

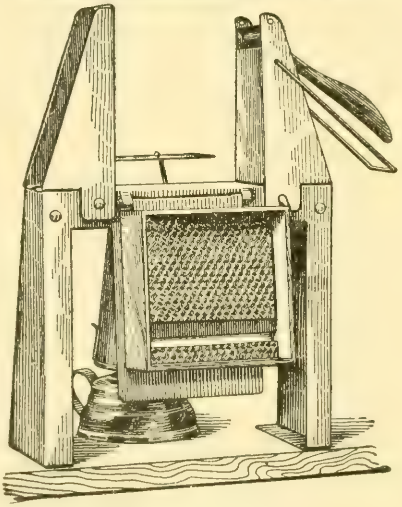
Dear Mr. Woodman:—I have now had several weeks' opportunity to try out the New Smoker called the Big Smoke, with the guard about the fire pot. The smoker is even more than I anticipated and unless something else is brought out that is still better, you can be assured that this particular one will be standard equipment for this place from now on.

B. F. Kindig,
State Inspector of Apiaries.





The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

TIN HONEY PACKAGES.

2 lb. Friction top cans, cases of 24
2 lb. Friction top cans, crates of 612
2½ lb. Friction top cans, cases of 24
2½ lb. Friction top cans, crates of 450
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 200
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 100

Ask for our special money-saving prices, stating quantity wanted.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

Seasonable Suggestions:

Hoffman frames with 1 1-2-in. spacing supplied for either standard or Jumbo depth. Write us if interested.

Note that packages weighing up to 70 pounds may be sent by parcel post. If you are on an R. F. D. route it is often cheaper than express or freight on quite large shipments. We make a specialty of quick service on all such orders.

We want beeswax. We pay the highest market price. How much have you?

We supply Root's goods in Michigan. They are best known for their good quality. Our part is quicker and cheaper service.

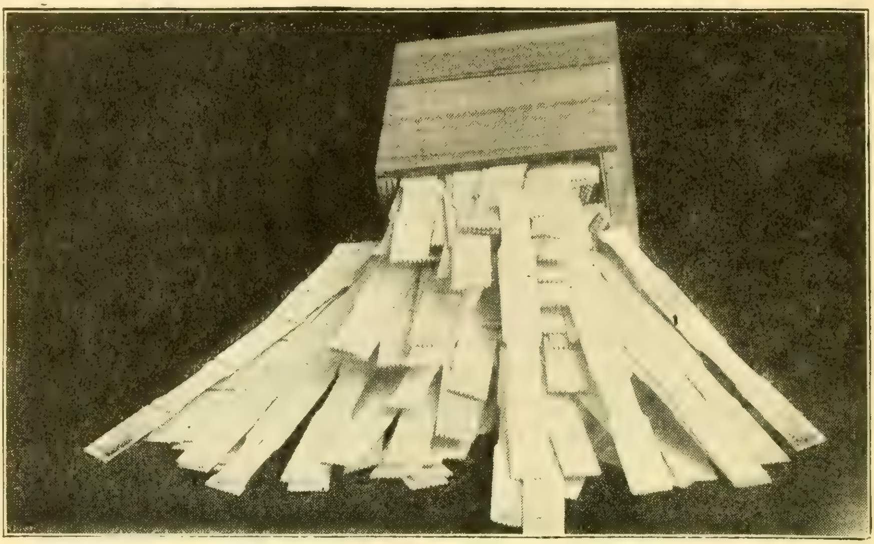
Beginners' outfits either with or without bees. Our best equipment included with them. See pages 51-54 of the new catalog.

❡

M. H. Hunt & Son

510 North Cedar Street
Lansing, Michigan

LEWIS ONE-PIECE SECTIONS



June 28, 1881 was a "red letter" day in American beekeeping.
Lewis one-piece section experiments ended on that date.
Letters of patent were granted to the successful inventor.
These experiments were carried out in the Lewis laboratories.
Next to Langstroth's this invention ranks among the first.
Quality of Lewis sections has been maintained to this day.
Every box, every carload, every trainload is A-1 quality.

- - - - - - - - -

Avoid glutted extracted honey markets---raise comb honey.
To get the highest market price, use Lewis 1-piece sections.

Look for

BEE HIVES AND APIARIAN EQUIPMENT
BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. U S A
MAKES THE FINEST.
COPYRIGHT, 1916, BY G. B. LEWIS COMPANY

This Mark

Service Department—Let us help you with your problems, free.
May we send you a "Beeware" catalog? A distributor is near you.
Read "How To Manage Bees In Spring," a Lewis booklet, price 5c.

G. B. LEWIS COMPANY

Makers of Beeware

WATERTOWN WISCONSIN

Branches and distributors everywhere.

GLEANINGS IN BEE CULTURE

JUNE, 1920

Too Early Orders.

A BEEKEEPER addressing Gleanings begins a complaint against Southern queen- and bee-rearers by saying that there seems to be a strife between Southern breeders as to who can advertise earliest delivery of queens and bees; and adds that since our seasons seem to be getting later each year and breeders unable to fill orders on time, a great deal of loss and disappointment is experienced by buyers of bees and queens, and especially by inexperienced buyers.

As we see it, both parties are at fault in this matter; the breeder, because he promises delivery at a time which is at best uncertain; and the buyer, because (with insufficient knowledge of the business) he tries to do something that the experienced beeman would not attempt, namely, to build up colonies from pound packages in too early spring. Where these packages are ordered for the purpose of strengthening weak colonies it is well enough to get them early, altho they would probably do just as much good if they were not received until settled warm weather; but where they are wanted for starting colonies it is much safer to wait until after the season of cold, rainy weather which we are so likely to have during the early fruit bloom.

* * *

An Eye-opener—Conditions in the Southeast.

"TOO MUCH LAND to navigate, and too much water to cultivate." This is a literal statement concerning some of the best bee country the Editor has visited in some 25,000 miles of travel during the last year.

It has been commonly believed that the great bee operations would hereafter have to be confined to that portion of the country west of the Mississippi, and particularly to those States where irrigation is practiced; but during the last few weeks the Editor has had his eyes opened. It is, perhaps, not wise to indulge in prophecies; but he ventures to predict that the greatest development in bee culture in the next 10 years will be thruout the Atlantic coastal plain along the rivers and streams from Virginia to Texas. While there are wonderful opportunities opening up in the Appalachian Mountains, the great future, undoubtedly, lies largely within 100 miles of the southeast Atlantic coast. Government statistics go to show that there are more bees and beekeepers in North Carolina, South Carolina, and Georgia, than in any other section of equal area in the United States. While Government statistics are none too reliable in that they do not take into account many of the professional beekeepers and small beekeepers located in the towns and cities; yet for the purpose of comparison they show that the area mentioned has more bees, mainly in box hives and log gums, than elsewhere, unless we except two or three of the western States.

The very fact that bees under that kind of haphazard management (under which the best colonies are brimstoned, only second-rate colonies kept, and all second and third swarms lost) can live on year after year, shows there must be something extraordinary in the territory. What could be done under intelligent management with modern equipment and saving all the bees can only be guessed.

At the present time box hives and log gums in this territory are rapidly giving way to modern equipment and management, thanks to U. S. Government and State aid. But there are thousands upon thousands of colonies in gums that can be had from $1.50 to $4.00 a colony; and these, when transferred into modern hives, are serving as wonderful object-lessons.

It has been generally believed that the honey of the Southeast is of inferior quality. Nothing could be further from the actual truth. Gallberry is found all the way from North Carolina along the coast and up the rivers to Texas; and pure gallberry honey, without admixture of tupelo, is so much like that from white clover with a little basswood mixed that it would take an expert to tell the difference. The tupelos and the black gums are found along the rivers, and yield a very superior light-colored honey. There is also the huckleberry, high and low bush, that yields an inferior honey that comes on to give a boost to the bees. Blackberry bushes, a very reliable source of honey for stimulating, are everywhere, up in the mountains and on the coastal plains. Cotton is all over the South and yields a good honey. Then there comes the titi—an inferior honey compared with those mentioned, but very abundant further southward. Running up thru the north-central section of Florida is the partridge pea, a wonderful yielder furnishing honey for three months.

In southeast Georgia, where the gallberry is at its best, and where also grow the tupelos and the black gums, are some of the largest and most up-to-date beekeepers of the country. For example, there is J. J. Wilder with 10,000 colonies, and a half-dozen others with from 1,000 to 3,000; and they all say there is more territory open not yet covered by bees.

Further north, in North Carolina and Georgia, particularly along the rivers, is some very fine bee country, and yet not a modern beekeeper within 40 or 50 miles in some places.

The old slogan, ''Go west, young man,'' has been the slogan of the young beekeeper; but the Editor predicts that there will be a new slogan, ''Go southeast, young man.'' And remember that with all its wonderful opportunities this region is close to the great centers of population — that is, the great honey-consuming public.

Do not get an idea that this country is all ''velvet,'' and that there are no obstacles to overcome and no failures. It should be made very plain that **some** of this wonderful bee country is swampy, and always will be so. In the language of a county extension man, ''There is too much land to navigate, and too much water to cultivate.'' The very swampy character of the land means mosquitoes and venomous snakes in a jungle of honey plants. The population is sparse, and the villages are small and primitive. There are no electric railways nor electric lights, and some of the country roads are abominable. The winters and springs are often chilly and damp, and the summers are very hot; but in spite of mosquitoes and redbugs there is but very little malaria, for the reason that the malarial mosquito can not develop in sour soil.

After all, is there any good thing without some drawbacks? The Editor of Gleanings believes that, in spite of these bad things, there are hundreds of beekeepers who will migrate into this country, buy up bees in log gums, transfer them, and reap splendid returns, but not until they have learned the country and the wintering and starvation problems. Success will not come the first year. There will be a lot of that kind of experience that Josh Billings tells about. The bees there breed enormously, the queens wear out fast, and, unless one knows the conditions, he will be a sadder (yes, and a madder) man—mad at Gleanings for ever getting him into such a mess of swamps, mosquitoes, redbugs, chiggers, snakes, worn-out colonies, worn-out queens, and a home in a jungle miles from nowhere.

The Editor took several hundred photos, and later on will give his readers pictures and detailed statements of all these places.

* * *

Plan for It Now!
Plan for It Now!
Plan for It Now!

UNDER THE PRESENT unprecedented sugar situation beekeepers are unable to obtain enough sugar for fall feeding; and, even if they were able to obtain it, they could ill afford to feed it to their bees at present prices and then sell their honey at a lower price than they paid for the sugar.

If this month were October instead of June and the sugar shortage had stolen upon us all unawares, we would feel that those beekeepers who had foul brood to contend with could not safely feed back honey a part of which might have come from diseased colonies, and that they, therefore, must have the sugar, even if they have to pay 50 cents a pound for it; otherwise there would be nothing ahead for their colonies but foul brood or starvation. But, fortunately, the shortage (or hold-up by profiteers) arises early enough in the season so that another and very satisfactory alternative is at the command of the beekeeper who is foresighted enough to plan his work a few months in advance—and right **now** is the time to do that planning.

All he needs to do is to produce, in old combs suitable for wintering and of the same size as those in his brood-chamber, enough good honey to carry his bees thru winter. If there is danger of foul brood in any of the colonies, the winter stores should, in each case, be retained by the colony that stored them, in order that the risk of spreading disease be avoided.

When the time for extracting comes, the high price of honey may tempt a few to extract too closely, but let any such remember the oft repeated warnings given by Gleanings last year, and let him recall how these warnings were verified by the starvation of 50 to 75 per cent of the colonies in some apiaries (and even 100 per cent in a few cases that have come to our attention). Think of it—such a great loss as this from starvation alone! We cannot give the per cent loss from starvation thruout the United States, but we know it was very large. Another similar loss the coming winter would indeed be a calamity to the beekeeping world.

Let us all make it our business to show as much foresight as the bees themselves, and no matter how it may cut into our surplus let us see that each colony has 30 to 40 pounds of good stores in good combs set apart for winter. These stores in the hives will be of much more value to the beekeeper than many times their money value in the bank.

* * *

Aluminum Comb—What About It?

UNFORTUNATELY, many have misunderstood the claims made by the Aluminum Honey Comb Company. This company, we believe, never claimed that aluminum combs would cure foul brood, and yet, it seems that many beekeepers have believed that with the purchase of these combs all foul-brood troubles would be over. Now, if it is true that aluminum combs infected with foul brood may be sterilized and made clean enough to rewax and return to the bees, then the price of a set of combs would be saved and the unpleasant work of wax-rendering avoided; but, with this possible exception, we fail to see one single point in favor of the aluminum comb in connection with foul brood. Colonies on aluminum combs become infected with foul brood just as readily as do those on wax combs; in fact, more readily in some localities because weaker. Moreover, in case a colony becomes infected, one could not cure foul brood with any more certainty nor in one second less of time with aluminum combs than with regular drawn combs. Some, we understand, have shaken diseased colonies from the infected combs immediately upon a set of aluminum combs expecting thus to cure them of disease. We wish to caution our readers that such a practice is not one whit safer than to shake the colony upon drawn combs, for, in either case, the bees being gorged with diseased honey store part of it in the cells. If there is a honey flow at the time, the contaminated honey may be covered up with new honey for months so that the colony appears to be cured; but, as soon as the honey gets low in the cells, the colony may be expected to show evidence of the disease.

In regard to the possibility of sterilizing the combs, rewaxing and returning to the bees, we can only give our own experience. Last fall in an apiary of about 60 colonies, two became infected with foul brood. One of these two was on aluminum combs. We secured these combs and observing from the article in the March number of the American magazine that they could be sterilized in hot water without hurting them in the least we decided to boil them. We boiled them for 10 or 15 minutes, but this we found was not long enough, so we just kept on. After three hours we found the cocoons, and most of the decayed matter stayed right in the cells and they certainly were far from clean and surely could not be rewaxed in that condition. Steam at high pressure blown on the combs removes most of the cocoons in time, but not all. It is probably true, however, that the disease germs are killed by the boiling or steaming, and the bees can perhaps clean out the cocoons and decayed matter if given enough time. But in handling over the combs we note some of the edges of the cells were bent. These the bees certainly cannot straighten.

We also have tried aluminum combs in a number of our hives, and have made other observations in regard to the combs. In some colonies we used aluminum combs entirely, in others some aluminum and some drawn comb. Our experience has been far from satisfactory. Except during a few weeks in summer when conditions are most favorable, the queens do not do as good work as in the drawn combs, but lay their eggs very scatteringly.

Whenever we placed an aluminum comb in the middle of the brood-chamber with drawn combs at the sides we found the queen would have brood in the drawn combs at both sides of the metal comb, but not a single egg in the metal comb. Some of our colonies refused to have anything to do with the metal combs as long as there were enough drawn combs in the hive.

All the colonies we supplied with aluminum combs dwindled, the old bees dying faster than the young ones could come on to take their places. Two colonies that were put on metal combs only, were fed quite continuously thruout the summer in order to see how they would build up. The greatest amount of brood one colony had at any time was four frames and the other colony only three, and by winter the colonies had dwindled so greatly that they were quite worthless. In the spring and fall the combs are too cold, and the brood is chilled. That is why all the colonies on aluminum combs dwindled as they did. To look at a colony when combs are in this condition with at least half of the brood dead is surely discouraging.

Not only did the combs prove poor for the rearing of brood, but also the bees refused to store syrup in them when the weather was a little cool in the fall, altho they stored readily in the drawn combs. Also when cool the bees refused to cluster on these combs, if they possessed enough drawn combs to accommodate them.

In regard to wintering on these combs, we have had a few unfavorable reports, such as that of J. L. Byer in this issue.

We regret that we are unable to tell from our own experience how the bees winter on metal combs, but we are going to tell why we can throw no light on the subject. It is simply because the brood died, and the colonies dwindled to such an extent that they were too small and worthless to winter.

For some time we have been feeling a little doubtful concerning the value of these combs, but since some good beekeepers have appeared to like them, we thought perhaps the difference might be due to the difference in climate, and perhaps in our locality it was too cool. Lately, however, we have learned of some who are objecting to the combs because the metal gets too hot. One such person, W. S. Pender, editor of The Australian Beekeeper, who recently spent a few days in Medina, said that he had no use for metal combs in his locality since they frequently have temperatures of from 100 to 120 degrees Fahrenheit in the shade, and he felt the metal would become so hot as to cook the brood, just as it has done in some parts of our own country.

A comb that is to be universally successful, we believe, should be composed of material that does not subject the brood to such sudden changes of temperature as does aluminum.

Perhaps, as a few of our correspondents have suggested, some of our readers may be willing to give us the value of their experience with these metal combs. It certainly would be worth while to settle definitely whether the aluminum combs are good or bad, or good in some localities and no good in others.

EXTENSIVE QUEEN - BREEDING

Some Big and Little Tricks of the Trade Useful to Honey-producers as well as to Queen-breeders

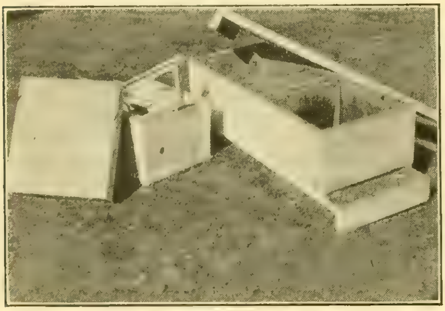
By E. R. Root

ONE of the most extensive queen and bee breeders of the United States is A. J. Pinard of Morgan Hill, Calif. His locality in the San Jose Valley is one of the best in the United States for the rearing of queens. Bees can gather honey almost every month in the year, so that but comparatively little feeding is required.

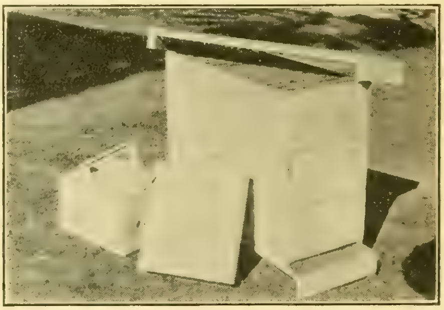
Mr. Pinard, altho an extensive breeder, has hitherto been unknown, because he has been selling direct to other breeders. His right-hand man and helper, his wife, does a large part of the grafting and the general correspondence. Both are in the prime of life and thoroly enjoy their work. I am pleased to introduce them to our readers by picture. I had some difficulty in getting these pictures, but finally got his wife and himself to stand up and be ''shot'' in orthodox fashion. They are jovial people and good hosts.

1.—Mr. and Mrs. A. J. Pinard of Morgan Hill, Calif. They raised 6,000 queens last year.

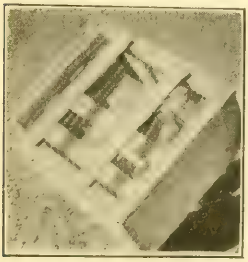
2.—Mr. Pinard's face shows that he is alert and intense.



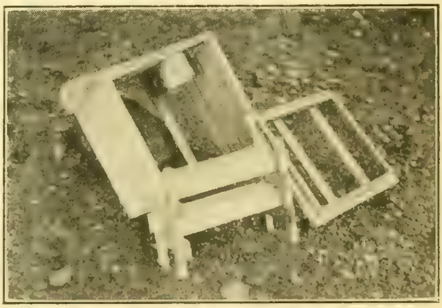
3.—The great problem with baby nuclei is to keep them supplied with bees, brood, and honey. These little clusters of bees are liable to dwindle. Mr. Pinard very nicely solved this problem by making up what might be called "baby Long Idea hives" that will hold 25 baby frames. Three of such baby Long Idea hive-bodies, piled one on top of the other, will hold a fair colony. See figure 4.



4.—Three-story baby Long Idea hives with full colonies to supply the small hives.

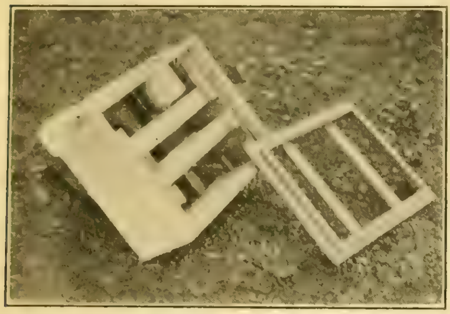


5.—This is a regular Root pound cage for shipping bees without combs (one side removable).

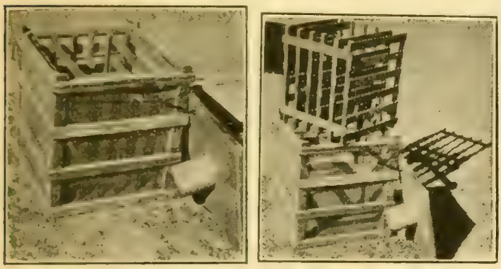


6.—Not only are the sides removable, but the framework also. See next figure.

A general survey of Mr. Pinard's premises and equipment convinced me that he is not only a good business man, a good beekeeper, and a good queen-breeder, but an all-around genius. It is some of his tricks of the trade that I wish to show at this time, not only because they will be helpful to queen-breeders, but in a larger way to honey-producers.



7.—The tin can at the top is supplied with a thin syrup. It is an ordinary friction-top container with a small hole in the bottom thru which food is supplied to the bees.



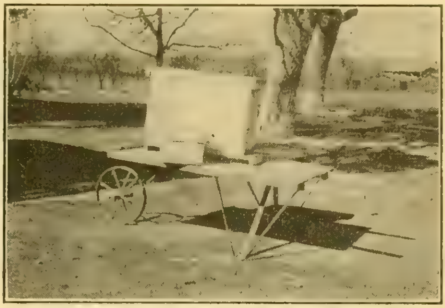
8 and 9.—The same general principle as shown in 5, 6, 7, except that the top is removable instead of the side. In this connection it should be stated that a removable framework will facilitate the removal of the bees at destination. When the framework is made fast it is very difficult to get the bees out of the cage. In order to make large shipments of bees, Mr. Pinard puts these boxes of bees into crates of a dozen or two. When the cages are emptied of bees at destination the whole thing is shipped as empty and then refilled. In this way the crates can be used over and over again.

Any man who can raise 6,000 queens by the help of his wife in one season and furnish several thousand pounds of bees and get a moderate crop of honey on top of all that, would not only have to employ methods but use devices that would cut the labor of himself and wife down to a minimum.

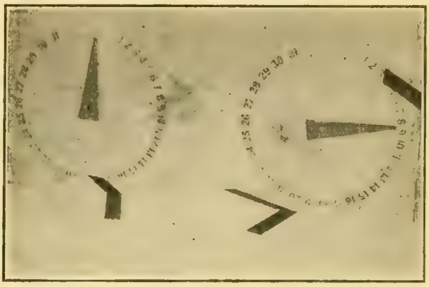
He is one of the few who know how to manage baby nuclei. For keeping them supplied with brood and bees he has a trick that is really worth knowing. The story is told in Figs. 3 and 4.

A number of three-story baby Long Idea hives containing full colonies are kept for supplying with bees, brood, and honey the small hives shown on the left in illustration No. 4. Sometimes only a frame of hatching brood is given. At other times a frame of brood and bees is given. With a few such hives kept in a mating yard it is perfectly easy to keep each baby hive well supplied with bees as well as food.

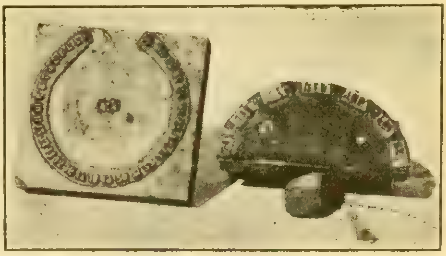
For shipping bees in pound packages, he has also another trick, that ought to be known all over the entire United States.



10.—The Pinard wheelbarrow. Any good mechanic can make one from the illustration. The fruit trees in the background give an idea of the country.



11.—This shows Mr. Pinard's scheme for keeping his hive records. The pointer gives the date. These figures are stamped on the covers of the baby hives with a rubber stamp, which any rubber-stamp concern can make.



12.—Notice that there is another rubber stamp showing the months of the year.

Whether he invented or devised it I do not know; but certainly it was employed a year ago both by him and Mr. Wing in shipping that large order of 3,000 two-pound packages of bees to Harry Warren. That story, likewise, is told in the photos in Figs. 5, 6, 7, 8, and 9. When you understand that the inside of the cage has a framework that is removable, and that the whole side or top is likewise removable, you will realize how easy it is to get the bees out of the cage.

But this is not all of the trick. Both he and Mr. Wing discovered that it is not necessary to use anything more than a thin syrup that supplies both food and water to the bees en route. The container is nothing but an inverted tin-can with a small hole in the bottom. It is very difficult to make queen-cage candy just right—neither too hard nor too soft—but very easy to make a syrup that will always be the same. Read the legends under the engravings for particulars.

Another trick is the platform wheelbarrow. There is nothing peculiar about it except its design and that it is just the right height for taking supers off the hive.

13.—This view shows the extensive way in which Mr. Pinard carries on his bee operations. He owns a two-ton truck, and attached behind is a trailer. When he gets ready to move he does it all in one trip, he and his neighbors working together.

Mr. Pinard has a big two-ton truck and a trailer. A man who does a business on as large a scale as he does, must have a complete equipment. Fig. 13 shows that he does things in a large way.

He has set his stakes to raise 10,000 queens this season, and I do not know how many thousands of pounds of bees. That he will be able to meet his expectation, I have no doubt. Both Mr. and Mrs. Pinard are the pictures of health and strength, as Fig. 1 shows. Their enthusiasm for their work is contagious. One feels as if he would like to hire out to them, for it is a pleasure even to watch them in action.

FOUL BROOD CONTROL

What One State is Doing in Cleaning up Foul Brood. Systematic Work Aided by Law

By S. B. Fracker

In the control of bee diseases Wisconsin is now trying some large-scale experiments, which differ in some respects from the methods used in other parts of the country. Foul-brood laws are no new thing in the United States or in this State. For over 20 years in Wisconsin and for 30 years or more in some of the Western States, apiary inspection has been carried on and attempts have been made to improve conditions.

Results of Past Failure.

Recently a reaction has taken place, based, in part, on an abuse of power by county inspectors in some parts of the country and, to some extent, on the obvious failure of state inspection to accomplish what was expected. As a result, the situation has been opened for any sort of experiment from a complete abandonment of inspection to the most rigid of area disease-eradication methods. Developments of the last five years in Texas, Iowa, Florida, and Pennsylvania are in point.

Before describing the comprehensive plan adopted last year in Wisconsin, which is intended to cover every loophole in the battle against foul brood, let us examine for a moment the bee-disease situation in the State.

Disease Situation in the State.

The accompanying map indicates in only a general way the plight of Wisconsin beekeepers in fighting American foul brood. Since its introduction in 1870 the disease has spread until infections are now known in practically every county except a few of the northern ones. More samples of this disease are said to have been received at Washington from Wisconsin than from any other State, and many large beekeepers have lost entire apiaries. A more disheartening situation can hardly be imagined than faces a large honey-producer with American foul brood scattered thru his yards. Many have been the profits turned into losses in recent years from this cause. We read with interest of the publishing of foul-brood infections in other States, totaling one-half of one per cent of the apiaries examined, when our inspectors find 30 to 45 per cent diseased in some counties.

I have outlined the conditions because the plans now being followed are somewhat drastic and expensive. They may not be needed in other places and certainly should not be judged from the standpoint of areas in which a bee disease is a novelty.

Premises Assumed.

The premises on which Wisconsin's policy is based are as follows:

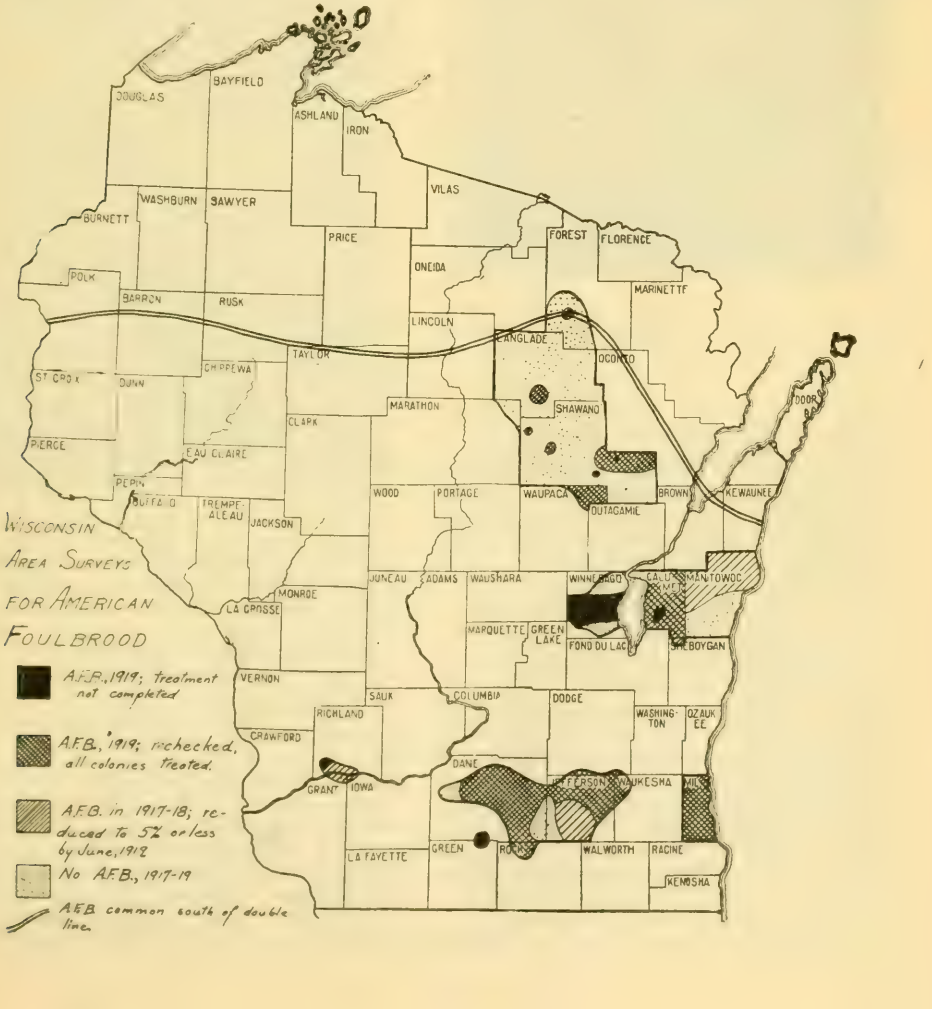
1. The two serious diseases, European and American foul brood, must be handled

by different methods in attempting state-wide control.

2. The beekeeper can keep his losses from European foul brood negligible by maintaining Italian bees, good colony strength and careful wintering, and by requeening as the disease appears.
3. The beekeeper can not eradicate European foul brood completely and keep it out by any methods now known.
4. The presence of European foul brood in a yard may or may not threaten the health of neighboring bees; but, even if it does, the present methods of treatment will not protect the neighboring apiary.
5. Therefore, the European foul-brood problem, except for preventing transportation into clean territory, is not one for compulsory measures in the present state of our knowledge.
6. On the other hand, American foul brood is a menace to neighboring apiaries, can be readily transported, and can be permanently and completely eradicated.
7. The most important means of distributing American foul brood is the sale and transportation of bees and used bee-supplies.

The first five of these premises have been covered so thoroly by Dr. Phillips in talks in all parts of the country that they scarcely need further explanation. When a method of eradicating every trace of European foul brood from an apiary or a township has been worked out by the government, at least one Wisconsin county, Manitowoc, will be ready to try it out at once. In the meantime the beekeepers of that region are buying Italian queens in wholesale quantities thru their strong local association and adopting the other control measures recommended.

The sixth and seventh points are based primarily on experience with foul brood in Wisconsin, altho they can undoubtedly be confirmed in other parts of the United States. Many an apiary of the State has cleaned up completely and never had a recurrence. Space is too limited to give the evidence we have, showing that the transportation of bees and bee supplies is a much


Wisconsin Area Surveys for American Foulbrood
A.F.B., 1919; treatment not completed
A.F.B., 1919; rechecked, all colonies treated.
A.F.B. in 1917-18; reduced to 5% or less by June, 1919
No A.F.B., 1917-19
A.F.B common south of double line.
DOUGLAS
BAYFIELD
ASHLAND
IRON
VILAS
WASHBURN
SAWYER
BURNETT
PRICE
FOREST
FLORENCE
ONEIDA
POLK
MARINETTE
BARRON
RUSK
LINCOLN
LANGLADE
TAYLOR
OCONTO
CHIPPEWA
ST CROIX
DUNN
DOOR
MARATHON
SHAWANO
CLARK
PIERCE
EAU CLAIRE
PEPIN
BUFFALO
TREMPEALEAU
WOOD
PORTAGE
WAUPACA
BROWN
KEWAUNEE
JACKSON
OUTAGAMIE
JUNEAU
ADAMS
WAUSHARA
WINNEBAGO
CALUMET
MANITOWOC
MONROE
LA CROSSE
MARQUETTE
GREEN LAKE
FOND DU LAC
SHEBOYGAN
VERNON
SAUK
COLUMBIA
DODGE
RICHLAND
WASHINGTON
OZAUKEE
CRAWFORD
DANE
GRANT
IOWA
JEFFERSON
WAUKESHA
MIL
GREEN
ROCK
WALWORTH
RACINE
LA FAYETTE
KENOSHA

more important factor in the distribution of American foul brood than neighborhood robbing, but the indications are that the latter is principally serious within less than a mile of infected colonies.

Features of the Plan.

The Wisconsin plan of bee-disease control, therefore, includes the following features:

a. The area clean-up method of American foul-brood control by covering one county at a time and rechecking it. This was begun in 1917 under the direction of Dr. E. D. Ball, now of Iowa.

A source of foul brood was found in the walls of this Wisconsin silo. The owner failed to clean out the diseased swarm, and this place became a disease center.

b. The requirement of either a permit or an inspection certificate for each package of bees and used bee-supplies whenever sold or moved either in the State or into it from the outside. Our 1919 statute makes this regulation.

c. Demonstration and educational work to keep the symptoms of, and control methods for, both European and American foul brood in the minds of as many of our 10,000 beekeepers as possible.

These measures are in charge of the State Entomologist's office in the department of agriculture at the State capitol, the first two directly and the third in co-operation with the extension service of the College of Agriculture. They are based on a new statute, which includes several new features in addition to those usually included in inspection laws.

Degree of Success Attained.

"The proof of the pudding is in the eating." What success has been obtained in American foul-brood eradication? In answering this question, while no apologies are necessary, a failure of the Wisconsin honey flow in 1918 must be understood, resulting in the impracticability of effective treatment (except by destruction) that season. No rechecking was done that year.

In Manitowoc County the per cent of diseased apiaries (A. F. B. only) in 1917 was found to be 31 per cent. In 1918 this had been reduced to 11 per cent; while in 1919 only two apiaries containing two diseased colonies were discovered.

In the southern two-thirds of Jefferson County American foul-brood infection was reduced from 40 per cent in 1918 to 23 per cent in June, 1919, all of which has now been treated or destroyed.

In Dane County surveys were made in 1917 and 1918, but no attempt to treat was made and the infection increased. In 1919, 36 per cent of the apiaries examined were found infected, and with the exception of two or three colonies treatment was applied thruout.

In Richland County the work has so far been confined to the southern tier of townships. Here American foul brood has been wiped out, except in the northwest corner of the inspected area.

In Forest, Langlade, and Shawano counties the condition was not so serious, but disease areas were discovered near Soperton, Antigo, Bonduel, Cecil, Belle Plaine, Birnamwood, and Clintonville. At the last inspection of 1919 no disease was found in these locations, except in three or four colonies located near Bonduel and Belle Plaine.

During 1919 Milwaukee and Winnebago counties were surveyed, the former completely, the latter partially. Every diseased colony in the former county was treated or destroyed. The work in the latter has not been completed.

It should be understood that our southern Wisconsin honey flow is so short that one can not determine the effect of a clean-up campaign the same season. Rechecking is carried on in these counties entirely to see that treatment has been applied. The inspectors then visit the same apiaries the following season, looking for a reappearance of the disease. The results of the 1919 campaign, therefore, can not be determined as yet.

We have recently made a study of the inspection records to learn (a) the results of owners' treatment or destruction of infected colonies; (b) the results of owners' neglect to act; (c) the appearance of the disease during a campaign in apiaries found healthy at the first inspection.

The results in Jefferson County are typical, American foul brood only being considered. During the 1918 campaign, 35 owners applied treatment or destruction to their 108 infected colonies. The 1919 inspection showed that 20 owners had completely freed their apiaries of disease, and that the total number of diseased colonies among the 15 apiaries originally diseased had been reduced from 108 to 22. In other words, the first treatment was 80 per cent efficient.

As a contrast, the experience of seven owners in the same locality who took no action is of interest. Their apiaries in 1918 contained 98 colonies, of which 12 were diseased. The following spring the total number of healthy colonies had become reduced from 86 to 73 in one season, and the amount of disease had nearly doubled.

In Jefferson and Manitowoc counties, the disease appeared in only two or three originally healthy apiaries during the two years' campaign; but in Dane County where beekeepers are close together, the increase was much more rapid.

Our experience would cause us to recommend destruction of single diseased colonies in most cases. As inspectors, however, we destroy colonies only as a result of persistent neglect or refusal to treat. In 1919 seven apiaries containing a total of about a dozen colonies were burned by inspectors, but the permission of the owners was secured in every case but one.

In these neglected hives behind a barn Wisconsin apiary inspectors found an unsuspected infection center of foul brood.

In treatment our greatest difficulty is to prevent owners from saving the "super-comb" over diseased brood-chambers and using it again. Several large apiaries have retained the disease thru several successive wholesale treatments by this means. How beekeepers do love the old comb!

Organization for Foul-brood Eradication.

A word as to organization. The State and U. S. departments of agriculture and the College of Agriculture are co-operating in paying the salary and expenses of an apiary inspector and field agent, H. L. McMurry, who puts in full time on inspection work in June, July, and August, part time in May and September, and acts in an advisory and educational capacity the remainder of the year. From September to May his primary attention is given to extension and organization work under the College of Agriculture. An average of five or six full-time state inspectors are employed for 10 or 12 weeks in the summer to carry on the area clean-up campaigns.

Inspections for the sale and transportation of bees are usually made by local inspectors recommended by county associations and appointed after civil-service examination. About 30 of these will be available for 1920.

A staff of between one and two hundred volunteer co-operators is also being organized to report sales or transportation of bees and used bee-supplies and conditions in their own neighborhoods.

Wisconsin is in the foul-brood game to win. We believe that we are on the right track in combining area clean-up work and restrictions on moving bees with educational and organization activities. Police power is applied thru the Madison office and by state inspectors; local assistance is given by local inspectors.

If these methods fail to bring results, we shall try others until successful ones are discovered. Present losses from foul brood are appalling and compel us to adopt heroic control measures. Fortunately, the work has the backing of practically all the beekeepers, and this support is rapidly becoming stronger.

Madison, Wis.

[It has been claimed that it is impossible for a county association or any other group of beekeepers to meet without at least some reference being made to foul brood, and it is little wonder that they are interested, for the disease is every year gaining ground. This does not mean that the two foul-brood diseases cannot be greatly diminished in this country, but it does mean that so far the right methods have not been used. As long as beekeepers attempt to meet the problem spasmodically and by merely treating individual colonies, just so long will this topic remain a live one among the beekeepers. But as soon as beekeepers sufficiently realize the seriousness of the disease, to organize efficiently for its eradication as the beekeepers of Wisconsin are now attempting to do, then and only then may we expect to see beekeepers gain the upper hand of European and American foul brood. In Professor Fracker's words, "Wisconsin is in the foul-brood game to win." This spirit augurs well for success, and Wisconsin may be certain her undertaking will be closely watched by the beekeepers of the entire country.—Editor.]

FROM THE FIELD OF EXPERIENCE

EXTRACTED-HONEY PRODUCTION

Gets Increase and 30 to 50 Pounds More per Colony, all with no Swarming

As we are constantly receiving thru the mail so many inquiries as to our hives, methods, and systems, we have decided to select this channel to answer all the questions simultaneously. We would like to say to the beekeeping fraternity that what we are contributing is from our close observation and lifelong experience.

After testing different sizes of hives and giving all the attention we thought the different systems required, we found we could seldom get the same results with any particular hive. For instance, with our 10-frame hives we could get along nicely, build up in prosperous shape for the clover, often two or three stories high, when all at once Dame Nature might pass into a cloudy period for two or three days, and when the earth took on her brightness again the colonies would begin to show the greatest activity. Some years ago we experienced such a season, when in less than eight minutes we had six swarms in the air at the same time. What a jollification! Now some of the beekeepers of today would call this good luck, but we find at this period whenever a swarm issues it means only one-half of a clover crop. If there only could be some means devised that would keep the bees contented, rain or shine, and hold the whole working force in readiness for the clover harvest! Perhaps it would be well to mention that we sometimes have three bodies high by the 25th of June, and in ordinary seasons add extra bodies as fast as needed.

After giving every make and size of hive a trial we adopted what we call the Business Man's Hive, which is 20 inches square, outside measurements, 10 inches deep, and contains standard self-spacing frames (Hoffman). We are strongly in favor of standardizing everything pertaining to a beeyard. With a 13-frame hive and a follower we can contract to either 8, 10, or 12 frames if we ever have any occasion to do so. But with our three-banders and young queens, we find that this size is none too large. They always have plenty of honey to back up their brood-rearing and for this reason always surge ahead.

Let me outline a little of our method of handling bees. After settled weather during sweet-cherry bloom, Myers and myself start clipping queens' wings and marking conditions of each hive. We have clipped as high as 75 in a day. When clipping the queens' wings we always select colonies for our breeders. Then June 10 to 15 we start queen-cells from these colonies with choice queens by removing old queens with two frames of hatching brood forming a nucleus, and add one comb of honey and two empty drawn combs and place the nucleus in a new location. We do this with as many as we think we shall require, allowing an average of 20 queen-cells to each of our large hives. About 12 days later we remove

This apiary of Adams & Myers was located thus to fertilize the large orchard shown in the background.

our laying queen with two frames of brood from all our strong colonies that we wish to requeen, making a nucleus similar to the nuclei formed earlier. At this same time we give a ripe queen-cell in a cell-protector from a colony made queenless 12 days before.

By this method we have found that it takes away all desire of swarming, and the new queen comes on the theater of action at the beginning of the honey flow, and such vim as it gives the swarm is surprising. If any of the queenless hives have started queen-cells before this protected cell hatches, the bees will destroy them as soon as the young queen emerges. With the young queen present in the hive, with plenty of room (that is, three stories at this season of the year), we are sure the swarming problem has been solved. There will be a short time (about 13 to 15 days) when there will not be much for the nurse bees to do, and seemingly they all pitch in and become workers much earlier than if left the old way. In fact, they hustle like a new prime swarm. Mr. Myers says he is positive we can get 30 to 50 pounds more to the colony besides extra increase and no swarming.

About Aug. 1 we start extracting. At this time we examine the nuclei we made at the beginning of the honey flow, and if they have developed so as to make prosperous colonies by fall, all is O. K. If not, then we give a frame or two of brood to help them up to proper strength. We plan to have all our nuclei build up sufficiently to fill a 10-frame body. These are wintered mostly in the cellar, and the next spring at the time of clipping queens we transfer them to 13-frame hives. Usually at extracting time we have two or three bodies of combs almost solid with honey to extract. As soon as extracted we sometimes divide the old swarm, usually placing most of the brood and one of the bodies and their queen in a new location; the remaining brood is left on the old stand in the lower body, and a new untested queen is given them. At the same time we add an extracting super to catch the surplus bees. After working on this system we have not had a swarm for two years in our home-yard of over 100 colonies.

With this system we have no use for queen-excluders, which, to my mind, hinder the bees and help in wearing them out. In our experience we have found that by using new comb in the third story or full sheets of foundation the young queen will find ample room and will confine herself to the two lower stories.

With our large hive and our locality we are able to connect our system with fruit-growing and make a success with both.

Adams & Myers.

Ransomville, N. Y.

INTRODUCING QUEENS

Methods Should Vary with the Condition of the Colony

When there was a good honey flow all of the plans of queen introduction I tried seemed to be a success; but when the honey flow stopped and I found that some of them failed part of the time, and the rest of them failed all the time, I decided it would be better to learn more about the old system—the one that has been used for many years, but perhaps not well understood.

The Benton cage with three one-inch holes bored part way thru a wooden block is mostly used in shipping queens. One of these inch holes which is connected with a ⅜-inch hole leading to the outside of the cage is filled with candy, which is intended to supply the queen and her attendants with food while on the road; and there is supposed to be enough left in the cage on arrival so that it will take the bees of the colony 48 hours to gnaw away the pasteboard that is tacked over the candy hole, eat out the remaining candy and release the queen.

The wire cloth that is nailed on one side of the cage is for the purpose of protecting the queen from the bees, also for the purpose of giving the bees a chance to get acquainted, or rather to give the queen the colony odor, which she must have before she will be accepted by the bees.

To introduce a queen to a normal colony, remove the queen from the hive. Also, the bees that accompany the queen should be removed from the cage. Then place the cage containing the new queen on top of or between the frames so the bees can have free access to the wire side of the cage. If the queen is still in the cage, sixty hours later, push a lead pencil thru the candy, making an opening for the queen to pass out. Place the cage back on the frames and let her majesty go out when ready to. By doing this the bees will have become quiet before the queen emerges from the cage.

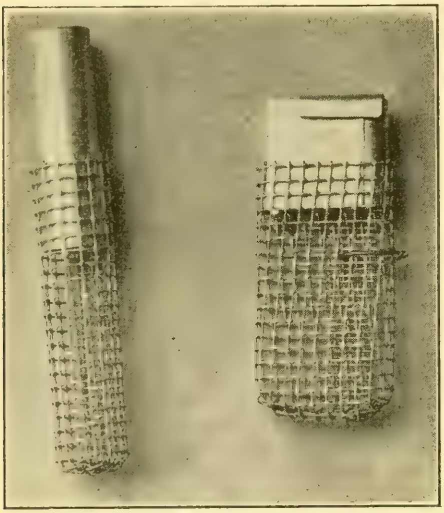
As a rule, we are in too much of a hurry to have the queen released from the cage. If she is released a few hours before she completely absorbs the colony odor, she will be balled by the bees. The colony should not be disturbed for a few days after the queen has been released.

When a colony has been queenless from three to five days they will have started queen-cells. Then the queen-cells should be removed before the queen is released.

When a colony has been queenless eight or nine days the brood will all be sealed, and there will be capped queen-cells, all of which should be removed and a few hours later a queen run in at the entrance. The reason they accept a queen so readily is because they have, to a great extent, lost their identity and are on the downward road to ruin, and they will certainly be thankful to have any kind of a queen.

Sometimes it is quite necessary to introduce a queen when robbing is going on in the yard. The first thing to do is to contract all entrances, and the entrance of the hive where the queen is to be introduced should be contracted down to an inch or less. If very hot the hives should be well shaded and all cracks made bee-tight.

The cage containing the queen to be introduced should have a cork or plug inserted in the candy hole so the bees can't get to the candy. Leave the cork in the candy hole until the bees quit biting and balling the cage. The cork should then be removed, and a pencil run thru the candy, making an opening so the queen can be released by the bees widening the hole. Then place the cage back in the hive, leaving the queen to emerge after the bees become quiet again.



All-wire cages as used by Mr. Diemer.

When there is a good honey flow, queens will be more readily accepted than when there is no honey flow, caused perhaps by the great amount of honey in each hive having the same odor.

The Benton shipping cage is used in introducing queens and does very well, because the queen will probably absorb the colony odor as well as she would in an all-wire cage. The worst fault I find with it is, that sometimes the bees fail to gnaw away the pasteboard that is tacked over the candy hole; and even if they do gnaw away the pasteboard, sometimes a bee will get stuck in the candy and delay the release of the queen.

There is considerable advantage in an all-wire cage in which the receptacle for the candy is large enough to eliminate all danger of the candy hole's being stopped up by a bee getting stuck in the candy, and to have an introducing cage made so there need be no fear as to whether the queen will be released in a reasonable time or not. If the wire cages shown in the illustration are used according to instructions, there need be no fear as to the results.

I have no cages for sale, but anyone with a little ingenuity can soon make enough for his own use. J. F. Diemer.

Liberty, Mo.

[In our experience we have found it more difficult to introduce to a colony eight or nine days queenless than to one queenless only three days. In regard to the tinned-wire introducing cage used by Mr. Diemer, we would prefer the regular Miller introducing cage, which is thinner and therefore does not cause a bulging of the combs when placed between them. Also, Mell Pritchard reports that in the Root yards it has been found that painted wire cloth is more satisfactory than tinned cloth, since the chemical action between the moisture in the hive and the tinned wire results in the loss of many queens. On taking this up with Mr. Diemer, however, he replies that his cages are made safe for use by dipping them in boiling wax before using.—Editor.]

OLD LETTER BY DEMAREE

Swarm Control Discussed in Unpublished Letter to Lawing

One of our subscribers, S. S. Lawing, while looking over some old letters found one by G. W. Demaree, dated Dec. 26, 1893, which he thought other beekeepers would enjoy reading. The letter is almost entirely on the subject of swarm control. As previously pointed out in Gleanings (page 340, June, 1918) Demaree gave four different plans for swarm control, which have later been improved upon by others. In 1895 in his last plan he advocated raising all the sealed brood above the queen-excluder and leaving the queen below. Altho the plan given in this letter was a little earlier and advised raising all the brood, we are sure it will be of interest since it gives points that we believe were not touched on in his other discussions of this subject. It will be noted that he applied the plan either before or after the swarm issued, and that he used it in the production of both comb and extracted honey. The letter is as follows:

> Concerning my method of controlling swarming and keeping the bees together during the honey harvest, I practice it from year to year where there is need for restraint to keep my colonies from dividing their forces at swarming time. I find no plan equal to it in taking honey with the extractor or in taking comb honey, after learning

FROM THE FIELD OF EXPERIENCE

how to feed back to have the unfinished sections finished up. I am sure it works well for taking comb honey.

The operation is performed simply by raising all the combs that contain brood above the queen-excluder, putting empty or honey-filled combs in their place in the brood-nest below the excluder, and hiving the swarm back. If the queen with the swarm is old, it pays to supersede her with a queen-cell. If she is strong and good, just let her alone. The manipulation may be performed either before or after the swarm issues. You give room for all the bees to work by tiering up if the season is good; if not, the bees will surely fill the upper story as fast as the brood hatches out, and in the poorest season, I am sure of one set of combs well filled. If the season is good, I am sure of a paying crop.

When hiving back in this way there is no disturbance. The brood above the excluder assures the bees with perfect safety of perpetuity. Bees never get uneasy at swarming time when they have brood in the hive, whether above the excluder or below it. I pay no attention to the cells above the excluder. The young queens destroy the cells in the usual way, and the surviving young queen is finally destroyed by the workers, if they have a queen below the excluder. I leave all the combs on the hive till the honey harvest is over, and then deal with them as surplus combs. In a warm season, I leave them with the bees to keep them free from moth worms till fall. In fact, I winter my colonies in two-story hives. I would not exchange a plain Langstroth hive, so modernized as to tier up with a square joint, for any other hive. After trying all sorts of frames I prefer the Langstroth hanging frame to any other. They give me less work to handle them.

You are at liberty to write anything you wish about my system. When a good honey season comes and my apiary has the "swarm craze" I would have to just give it up if I could not apply my brood-raising system. With it I can control the craziest apiary on earth and take a paying crop of surplus honey. G. W. Demaree.

* * *

THE LAND OF THE COLD MIT

California Not Appreciated. Believes the South the Center of Modern Beekeeping

Your correspondent Mrs. Puerden has adopted California for her own. She calls it "mine." I, for one, will not contest the adoption. She is welcome to it.

I notice that in her article no mention is made of beekeeping. Here lies the explanation of her glowing eulogy. I feel sure that the favorable impression she carried away is due to her having never mentioned the word, **beekeeping.** Had she done so, she would have met a cold eye, a finny hand, and a gulped-down growl, "Here's another of 'em!"

California doesn't like beekeepers. You may have a round trip in your pocket, but suspicious California doesn't know it. Apiculturally speaking, it is the land not merely of the cold mit, but of the freeze-out.

I am a British member of the craft who made the long journey for the purpose of seeing something of the famous apiaries of that State and studying their methods. I attended meetings and conventions and heard some interesting discussions, but discovered a certain absentmindedness when I hinted that I should like to visit apiaries. I went so far as to write to one of the best-known beemen, asking permission to visit his yard, but the letter was not answered.

It seems to me that the gold diggers of '49 have gone into the bee business. They have discovered a good thing; they are first in the field; they don't quite know how much gold there is; but they are determined to share it among as few as possible.

But who is to say when the "saturation point" has been reached in any given bee locality? I had no opportunity of studying conditions nor of listening to experiences, but it struck me that California was pre-eminently a field for intensive bee culture. Where one gets two great flows, such as orange and sagebrush, intensive methods offer greater possibilities than in districts where a long even flow is usual. But, so far as I could gather, enormous numbers of colonies with low individual records are the rule, or extensive as opposed to intensive beekeeping. I should be greatly interested to know what could be achieved by ruthlessly intensive methods in the way of feeding back honey, uniting before the flow, etc., in an orange orchard. I venture to think that the result would show that nervousness about overstocked areas is unfounded. "Saturation point" is still a long way off, even with slap-dash, extensive methods.

Altho a little disappointed at my California tour, I feel that I have already discovered some important facts. The true home and center of modern beekeeping is now the Old South. How many Americans know this? Of Europeans hardly any. Californian statistics give a false impression. More carloads of extracted honey may appear in their agricultural schedules, but the last words in queen-rearing, race improvement, bee-transportation, and the finer points of apiculture come from the leading men of the South. Alabama, Texas, Mississippi, and Georgia are now the region where the student can learn more of beekeeping than perhaps in any other part of the world. You will find that the reputation of the Southerner for courtesy and hospitality is no false one. That he is a lazy, shiftless, unenterprising sort of person may, of course, be verified in the advertising columns of Gleanings and the almost unbelievable volume of business that lies behind them.

As for California, I give, devise, and bequeath it, together with all its dusty, tired palm trees, scrimmaging cafeterias, and real estate free lunches, to Mrs. Puerden.

Fitzpatrick, Ala. John H. Protheroe.

[In back Gleanings are several references to Stancy Puerden's husband. Therefore, in this article we have taken the liberty of changing "Mr." to "Mrs."—Editor.]

SIFTINGS

J. E. Crane

On page 265 of May Gleanings, mention is made of the losses of bees in many sections during the past winter. This is most certainly true in this section, and beekeepers have, I believe, lost more than in any one season in the past 20 years.

* * *

It was a treat to read the very interesting article by E. R. Root on the so-called “Long Idea Hive.” The evident fairness with which the subject is treated was most enjoyable. After caring for one of Mr. Poppleton's yards for a few weeks I quite fell in love with the hive, that is, for the South, there were so many good points in their favor. However, I fear this article will give a somewhat exaggerated impression of their value as a non-swarming hive. Mr. Poppleton engaged me to look after one of his yards located about 35 miles north of Miami, Fla. All the bees, numbering about 70 colonies, were in these long hives. I went to the yard the fore part of March, remaining about four weeks. There was not much honey coming in during this time, and but few of the hives were full of combs; but there was old honey in the hives, and plenty of fresh pollen to be had. The bees began swarming the day I arrived at the yard and continued to swarm until I left. I presume some 20 to 30 swarms issued during the time I was there. This may be a question of locality only, rather than of style of hive.

* * *

About two years ago somebody called me down for advising the use of the scrapings of propolis from sections for fuel, stating that it well repaid treating them for the wax which they contained. I had my doubts about it, but wished to know of how much value they were for this purpose, and so last fall or winter I treated about 30 pounds of scrapings by boiling in a large kettle of water. After stirring freely I got two and one-half pounds of nice wax, which well repaid me for the extra work. The person who called my attention to my wasteful method has my thanks. Twelve per cent was wax.

* * *

Jay Smith's article, page 275 of May Gleanings, is well worth the careful perusal and study of the amateur beekeeper. The rules he lays down are so simple, easily followed, and satisfactory that they should be put into practice. The swarming box has proved one of the most useful tools in our apiary. If I have a very valuable queen to introduce, I have found no better way than to use a swarming box, shaking a quart or two of bees into an empty box, leaving them for a few hours, and then dropping my new queen among them. Of course, they must be well fed and queenless. For securing or starting queen-cells it is just as useful. The use of a small bottle for storing royal jelly was a new idea to me, and can be made very valuable. I have tried to keep it in the cells, but it soon dries up in a warm room.

* * *

While the winter loss of colonies has been very large in this section, perhaps the greatest loss will come from the weakened condition of those that remain—small clusters of bees that will be unable to gather any surplus and will require most of the season to build up into respectable colonies.

* * *

On page 286 Mr. Byer tells how a colony was wintered on solid combs of honey in a cellar. He does not state whether the combs were solid with sealed honey or open cells, which might make quite a difference. For one I rejoice in his success, but still have my doubts about the wisdom of such a condition for outdoor wintering. His experience with aluminum combs is interesting; but I need more experiments before I shall be satisfied with them.

* * *

Jay Smith calls attention, on page 293, to Mr. Demuth's method of wintering. In talking with Mr. Demuth last winter about his method, he said there was one objection to it. His bees so packed come thru so strong and build up so fast in the spring that they are ready to swarm before he is ready for them. Some of us would call this a good fault.

* * *

I like that “Advertising Guarantee” printed in March Gleanings. Now that is just what we need, not only in bee journals but in all lines of business. There is no way of telling how many millions of dollars better off our country would be if all advertising was made to come up to the Gleanings standard. What a stimulus to business it would be. I believe that even those that advertise would be far better off, too, in the end.

* * *

In behalf of all the readers of Gleanings, may I thank Mrs. Stancy Puerden for her vivid account of “An Hour with Luther Burbank”? It seemed almost as good as going to Santa Rosa myself, and a great deal easier.

* * *

If sections to be used as bait sections are scraped down one-half, they will when filled look as well as new ones. It makes a cleaner job to use a sharp knife just bent so as to cut the comb down.

PRISONERS IN A CANYON

Stancy Puerden

WHEN we finally started home from San Francisco, leaving behind us all the fascinating things we had seen and the many more we wanted to see, there was a regular lump in my throat. Some day I hope to go west, accompanied by my family of course, and stay until I feel satisfied.

However, our boy and I were soon diverted when we approached the mountains and annexed another locomotive to help pull us over "the top of the world" into the State of Nevada. The boy jumped off at a station stop just to be able to say he had set foot in the State; but, not being in the mood for a divorce, not even the speedy and painless variety common in Nevada, his father and I remained on the train.

The next morning found us crossing desert country again, which as it approached Salt Lake grew more barren and yet more interesting. Ever since childhood days I have wished to see a mirage. I would be willing to risk heat prostration by visiting a desert in midsummer when mirages are at the height of their season.

But that day, crossing the barren country which was once a part of the bed of Great Salt Lake, we certainly saw very strange things, and until someone convinces me to the contrary I am going to believe they were mirages. Far in the distance we could see beautiful blue water around the base of a mountain range. The mountains seemed to fairly float in a great lake. As the train bore us nearer, the water gradually disappeared until the mountains were seen rising from dry and barren sand. My imagination is so efficient that I would hardly have trusted my own eyes alone, but our sixteen-year-old boy could see it as plainly as I could, and finally even his unimaginative father admitted he could see that water at the foot of the mountains. We saw this phenomenon again and again, and when we later came in sight of Great Salt Lake itself the only difference between that water and what we had seen earlier was that it did not disappear when we approached and crossed it.

SALT LAKE CITY, where we stopped off 24 hours to take in a beekeepers' meeting, is a beautiful little city, beautifully located in a valley with the most sociable mountains. They are so close to the city that many streets creep up the foothills, and from our hotel windows there was a magnificent "close-up" view of encircling mountains, draped in snow.

Speaking of that beekeepers' meeting, there was an announcement of it on a bulletin board near the elevators in the Hotel Utah. A chance acquaintance told me it first read "Barkeepers' Meeting." She said people would stroll by, read the bulletin, and comment, "What an optimistic set those fellows are."

THE head of the family chose the D. & R. G. from Salt Lake City to Denver, altho he remarked that he never takes that slow and uncertain route when he is alone. Leaving Salt Lake in the afternoon, the next morning found us running rather slowly thru beautiful Colorado mountain scenery near Glenwood Springs. From there we proceeded into the canyon of the Grand River, hugging close to the canyon walls on the right, while the narrow river was at our left and across it were the other walls of the canyon, which varied from almost perpendicular to steep and broken hills. Every turn of the train, and it was turning all the time, showed us a new and beautiful picture. We were enchanted. A Colorado beekeeper on the train told us interesting things about the canyon, how he and his family enjoyed an auto camping trip thru it the preceding summer. You see Colorado beekeepers are so prosperous that they can enjoy fine vacations and many other luxuries. It is a great State for honey as well as scenery.

About this time the train stopped suddenly, and presently it developed that the cause was a snow slide at the entrance to a tunnel just ahead. When the passengers poured out of the train the heap of snow mixed with dirt and rocks looked so big and the few workmen with their shovels so inadequate that it was apparent we were not going to have a change of view for some time.

It was a most picturesque place where we were. There was the tunnel in front of us with the snow slide almost hiding the entrance, and in sight behind us was another small tunnel, little more than a rocky arch over the railroad. The narrow ledge on which the railroad was built broadened at the point where our car happened to be enough to accommodate a little house between the railroad and the river and also a remodeled freight car in which lived two or three girl telegraphers. The tiny telegraph station was on the other side of the track. The whole was dignified by the name of Shoshone. The curves of the canyon make Shoshone seem completely surrounded by the steep hills, with no visible passage out. A light bridge crosses the river, connecting the little group of buildings with the highway which is built on a narrow ledge against the other wall of the canyon.

Diagonally across from Shoshone the canyon walls recede enough to leave a recess in the hills with room enough for a number of tents, and in these tents lived a convict gang, trusties from the state prison who were working on the highway. Before we left the canyon I learned to think of these men as our fellow prisoners, and from appearances they were just as contented and cheerful as the prisoners in the Pullman cars across the canyon.

TO return to the pile of snow: After a long time, when it seemed that it really was smaller, there was a dull, warning roar, the shovelers had just time to leap back to safety when down came another avalanche, burying the tunnel entrance deeper than ever. This was repeated a time or two more with some variations, and other slides nearer the cars kept things from monotony.

The track was cleared at last and our locomotive was detached and sent on thru the tunnel to attempt to push off some snow which had come down beyond. And then came back word that the locomotive had left the track and was helpless. At this time a locomotive from Glenwood Springs was attached to the rear of the train to furnish heat for the cars. Hearing of the disaster to the first locomotive, with all the enthusiasm of a Don Quixote, number two promptly detached herself, slid by us on a siding, and went to the assistance of her disabled sister. And she had no sooner disappeared thru that ill-fated tunnel than down came another avalanche at our end of the tunnel and cut us off from both locomotives, and then we heard the cheering tidings that a slide on the further side of the tunnel behind us cut us off from help from the rear. Night was approaching, we were without heat, food supplies were running low, there was no water in which to wash, and drinking water was gone in most of the cars. We felt as if we had been cut off from civilization for weeks and weeks, and we began to imagine how beautiful a daily paper would look.

HOURS later in the night a sort of snow plow and wrecker combined managed to get thru from the front, righted our helpless locomotive, dug back to us and went on to tackle the slides behind us and then was disabled itself. Some time during the afternoon of the next day the two locomotives, one in front and one in the rear of the observation car, in which was our section, cautiously inched us along to the tunnel, crept thru it, and then proceeded very slowly. Even the most nervous of the passengers were beginning to relax when there was a tremendous jarring bump followed by more bumps and crashes and we stopped. Our section was clear to the front of the car, and as I turned to see if the roof of the car was falling in I was struck with the unanimously ghastly look of the passengers. When we found we were all alive and uninjured the men rushed out to see what had happened, but from the curve of the road we could see without leaving the car that our poor locomotive lay beside the track with its wheels helplessly sticking up in the air like a disabled monster. The engineer had attempted to drive thru a new snow slide, had struck a hidden rock in the snow, the locomotive had started to climb it and toppled over.

But it was one of those accidents which we term fortunate. In spite of the fact that an agitated passenger told us the fireman was killed, he was uninjured as he had happened to be on the engineer's side and had clung to it. If the locomotive had gone over in almost any other place it would have landed in the river. The rear locomotive had dropped back some time before. The trainmen told us if it had been pushing, the train might have buckled and some of the cars have been pushed over into the river.

OUR new location was also beautiful, but somehow the passengers all seemed to feel rather fed up on canyon scenery. I always did prefer mountains only on one side, and hereafter I don't intend to go out of my way to see any canyon less than the Grand Canyon in Arizona.

That evening we dined late, and our dinner had about as many substitutes as we used during the war. The only drink obtainable was coffee. I suggested that they made coffee in order to sterilize the snow water, but the head of the family gave it as his opinion that the water was all converted into coffee to hide the fact that it was dirty. Well, it was liquid and hot and comforting anyway.

By this time the lights were very low and the spirits of a couple of women in the dressing room were so much lower that after a hasty and unsatisfactory attempt at cleansing face and hands in cold cream in lieu of the missing water I crept into a cold and almost dark berth and endeavored to place my various articles of clothing where I could locate them in the dark. Those same women refused to undress and go to bed because they had heard there was a chance of our being rescued and starting in the night.

Just before daylight we did start. It wasn't reassuring to think that any moment a portion of that snow blanket on the mountains, loosened by sudden warm weather, might come down on us in a destructive avalanche; but this time we kept on and on, past four or five trains, held up by our troubles, on into beautiful Eagle Canyon, doubly beautiful to us when we learned that snow slides are unfashionable in that locality. You see the mountains are cut on a different pattern, more goring you might say.

AFTER we had climbed over Tennessee Pass and come out into the glorious view of Colorado's 50 wonderful snow-crowned mountain peaks we were rewarded for the anxiety and discomfort of the past days. Years ago I had seen that view of the mountains, and I had been secretly wondering if my memory hadn't been playing tricks on me. I felt that those mental pic-

(*Continued on page* 376.)

Beekeeping as a Side Line

Grace Allen

SUCH an ill-promising spring! One disastrous period has followed another, ever since that un-easter-like Easter Sunday when the wind rose and the thermometer fell and the whole earth shivered thru her garment of peach bloom and plum petal. During the cold dark days following, while the bees could not get out to the blossoms, we wondered anxiously about conditions in those quite too light hives we had moved a few weeks before. On the first possible day I went thru them. Hive after hive had not an ounce of honey, some of them actually not a cell. In some cases the bees themselves were quite evidently weak, crawling around pitifully on dry empty combs. In several hives they had begun dropping to the bottom-boards. In one colony more than half of them had already dropped off, and the great heap was shutting off all ventilation, so making even more certain the death of their still surviving comrades. Almost despairingly I gave these worst ones a little honey from colonies not yet so despairingly depleted, tho by no means able to spare it, being decidedly short themselves. Then we bought sugar. One hundred pounds doesn't go far, yet with it we undoubtedly tided about 20 colonies over a critical period. It meant giving them at least a chance for survival. A few days later apples and cherries came into promising bloom, and a day or two of good weather meant another chance. But after two good days of nectar-gathering, came cyclonic rain and storm and every blossom was dashed off. Another cool rainy spell, and again we bought sugar and fed—paying $23.00 for it, by the way, where it had cost $18.00 a week before. Now (May 7) black locust is in bloom, fully two weeks late, and again weather conditions are unsettled, with the bees getting far less than a full chance at the nectar during these days so dark and clouded. Worst of all, white clover is coming into bloom on time, and the bees are in no wise ready for the flow. Brood-rearing has been so seriously checked that most hives had no more brood on the first of May than at the end of March. Unless the clover has an extended blooming period, there will be little or no surplus honey. To avoid disappointment, I, for one, am counting on none. (And secretly hoping to be mistaken!)

But there are many beekeepers who face even a worse situation than ours, as they have actually lost a heavy per cent of their colonies. While ours are seriously weakened, we have saved all but the one that perished in February. Even beekeepers like Mr. Buchanan, who practice leaving more than enough stores, have felt the severity of this spring; yet their bees have, of course, been able to come thru this experience far ahead of others. In our own little home yard there was a wealth of honey in each hive, and there conditions are now more nearly normal. We really extracted more closely there than in the country yard, too, but there was a sufficient flow during the late summer to keep up brood-rearing and also to allow an accumulation of stores; so when the fall flow proved so disappointing, there was no shortage. We really thought we had left ample out in the country yard, but were evidently depending too much on that elusive fall flow. As winter came on we realized that those hives were too light, but conditions were such that we decided to risk it. Now we are paying the penalty—an unusually heavy one, as this is an unusually bad spring. Hereafter, when extracting, we shall act as tho there were to be no fall flow at all; then if there is, there can be another extracting.

High winds make tragic conditions for our bees. We have all seen them coming in, wind-tossed. One day lately I watched them for some time; there may not have blown a tremendous wind, yet it was what the bees and I would call a very windy day. Heavy with nuggets of golden pollen, or nectar from the orchard blossoming to the west, they were buffeted roughly about as they curved swiftly down to the entrances, many of them landing on the ground and crawling wearily about seeking the entrance. Some of the hives had been set on bricks, and often the bees wasted valuable minutes, directly below the entrance, crawling back under the hive between the front bricks. So I left off my lazy watching, to fix them up some improvised runways from the ground to the alighting boards. These may not be worth while for the big producer to bother with, but certainly the sideline beekeeper ought to provide every hive with boards slanting from the ground to the entrance, unless he has wide alighting boards.

Between the objects of the backlotter and those of the big producer there stretches a wide difference. The backlotter may have obtained his first hive by accident, and continued with it because of a wakening interest; or he got it for honey for his table, in the same spirit as he got his Rhode Island chickens or his onion sets or his Golden Bantom seed corn; or he got it just for the sheer unadulterated delight of a fascinating outdoor hobby. Probably both the honey and the pleasure form the double-barreled object of most sideliners. Part of them will say, "Oh, I keep bees just for the fun of it—and then we like the honey, too"; and the rest will say, "We're such a honey-eating family, we like to raise it ourselves, and have a little left over to give to our friends and neighbors, too—and then we enjoy having the little rascals around and working with them.'' There lies the object of practically all backlotters, pleasure and honey, or else honey and pleasure. Money, which is necessarily the ultimate object of the commercial producer, is doubtless a prime factor among only a few backlot beekeepers, at first. Later, if skill or location, or a happy combination of the two, makes a backlotter realize what he might attain with bees, he often ceases to be a simon-pure backlotter, and passes quietly into that class who are in the transition stage, with big production as their goal.

This contrast between the aims of the sideline beekeeper and the big honey-producer is what accounts for, yes and justifies, the difference in their methods. The man who expects to produce honey by the ton, by the carlot, must make every minute and every motion count. He will ''examine'' 75 or 100 or more colonies in a day. The backlot beekeeper will hover over one hive for half an hour or longer. He has much to learn; much to enjoy in the learning. There is the queen to watch as she moves across the comb, the depositing of the eggs to be noticed, the concentric arrangement of the brood to be observed, the brushing-off of pollen from the workers' legs into a cell to be noted, and all the other marvels of the hive to become familiar with. While doing all this, he is attaining his object—enjoyment, as the quiet, spirit-refreshing hours pass over him, shot thru with sunshine and birdsong and the humming of the bees.

Or, starting out to ''examine'' his hives, rather than to observe their workings, he counts his combs of brood, taking each one out in turn, searching painstakingly for queen-cells, noticing his incoming honey, slowly deciding what to do next; enlarge or reduce his brood-chamber, raise brood, give supers or take supers away. While the big producer has reached his conclusions, perhaps, by the drawing out of a single comb of brood, its size and general appearance serving his alert and experienced mind as an index to the conditions thruout the hive; or he may merely raise the cover and look down in without taking out a single comb; or he may look only at the entrance and say, ''We'll give more super room here.''

Yet generally he has reached his present stage of quick judgment by the sideliner's route. Perhaps as a boy in his father's beeyard, he spent long busy lazy vacation days watching the bees outside the hive and in, and ''helping Dad''; or he, too, may have had bees first as a sideline, an avocation that brought him so much of either interest or success (probably both) that he has since made it his real work. Great oaks, you know, must have—and that without exception—the oft-remarked little acorn beginning.

All sideline beekeepers will not choose to take up honey-production as a main work. One will prefer to go on with just a few bees humming among his flowers and trees, his pets and enthusiasm; he will be a sort of bee-fancier. I recall one such who wrote me once of his great delight in his bees, yet adding that he could not understand at all how anyone would want to keep bees for a living. Another may be so accurate an observer, so painstaking a recorder, so good a reporter, that he comes to be widely known as an authority on bee behavior. There are several such, well-known, who have never made beekeeping a main work. Yet there will always be some, and right now there are undoubtedly many, who catch the fever of honey production on a large scale. And promptly they pass into that growing class who have reached the transition stage.

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A CHILD'S WONDER-SONG.

The world is full of music, sweet and glad, or soft and low—
I think my baby sister hears it, for her eyes look so.
I know my Mother hears it, for she's trying all the time
To help me listen for it, as I listen for a rhyme.
And how I love a ringing rhyme! And sometimes how it sings!
Then how I listen *thru* it for the singing heart of things!

The singingest of all things is a music-throated bird
Like one in our old oak tree, that I've so often heard.
He wakes me in the morning when the grass is wet with dew,
With a song so full of gladness that I'm glad myself all thru!
"Now listen! Listen! Listen!"—seems to me that's how he sings,
"I'm blowing music-bubbles and they fly away on wings!"
Sometimes I wonder if the morning isn't singing too;
Sometimes I stop and try to hear—sometimes I think I do!

Another song I love to hear is buzzing of the bees,
Humming, humming, humming in the clover and the trees,
Packing pollen in their baskets when the plum is white with flower,
Flying round the rosy petals of the peach bloom by the hour.
I've heard their happy humming where the clover blossoms rock
And I've heard their busy buzzing in a friendly hollyhock.
Sometimes I wonder if the flowers may not be singing too;
Sometimes I stop and try to hear—sometimes I think I do!

Then comes a tiny baby breeze a-whispering a song,
Or bands of rushing grown-up winds that shout so loud and long.
I wonder where they come from and I wonder where they go;
I wish that *I* knew all the places that the winds must know.
They blow across the ocean and they blow across the land,
Singing all their wonder-songs to folks that understand.
Sometimes I wonder if the stillness might be singing too;
Sometimes I stop and try to hear—sometimes I think I do!

And then I wonder *up*, away beyond the yellow light,
To where the sky is blue by day and O so dark by night.
I wonder if the silver stars may not be singing too;
I'm listening right now to hear — and O I think I do!

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In Southern California.—The weather during the orange blooming period has not been very satisfactory. Day after day it remained cold, cloudy, or foggy until well toward noon. In many instances the bees during each day would get only two or three hours of flying weather. This condition has prolonged the blooming period and has given the weak colonies a good chance to build up. Of course, better weather has prevailed part of the time and, all in all, it is probably an average year for orange honey. The trees have been in full bloom now (May 3) for over a month and will likely continue one or two weeks longer, unless the weather should turn very warm, which condition always hastens the dropping of the blossoms. There are various estimates of the amount of orange honey likely to be produced this season, but the writer would venture to say that if an apiary averages 60 pounds per colony, Mr. Beekeeper should be satisfied. In many instances the making of increase has not been very successful. There has been much trouble with the bees' not staying with the nuclei, often leaving frames of brood to chill.

The extracting of orange honey has been going on for some time. We have been extracting enough well-ripened honey to relieve the congestion in the hives and to discourage swarming, but have been leaving the unripened honey on the hives. If an apiarist has enough combs to hold the orange-honey crop, it is an ideal way, as it happens so many times that two or three supers will be filled with thin nectar, and none of it will be ripened enough for the bees to cap it over. When ready, they seem to seal over two or three supers almost as quickly as one. Be sure to keep plenty of supers on the strong colonies, as they are the ones that bring up the average in production.

The black sage is putting out a great second growth, which promises well, and is yielding honey quite abundantly in favored locations. The wild buckwheat is showing a good growth, but it also shows the effect of the last two years of drought, and many bushes are either dead or partly so. The wild alfalfa is blooming profusely and is yielding well. The apiaries on the wild ranges in general are doing finely — in fact, better than at any time in several years.

Beekeepers who have for years produced comb honey have turned to the production of extracted, until now one can travel for days and find scarcely an apiary run for comb honey. Prices are not yet fixed, but many beekeepers are of the opinion that the white extracted should bring at least 20 cents per pound. The old crop is well sold out, the State Exchange, I understand, having cleaned up all of its 1919 crop.

It is reported that the San Bernardino County Club has been called upon to pay a reward for the arrest and conviction of parties who were caught stealing from the apiary of a member. Several of our county clubs have offered a reward in addition to that of $50 offered by the State Exchange for the conviction of any one found stealing or otherwise molesting the apiary of a member. This, I think, has had a very beneficial effect, even tho there have not been many convictions. Our trouble has been to keep the notices up. Vandals will shoot or tear them to pieces, and so far we have not been able to catch them at it.

Such wholesale swarming has not been reported in years. Every rancher who cares to take the trouble to hive them has from one to a dozen colonies. It is hard to account for this condition, for in many instances a colony would swarm with only five or six frames of brood and with empty space in the hive body.

One of our apiaries is located so that part of the colonies are very much in the shade—especially in the afternoon. These colonies often become so cross that it is necessary to change over and work the colonies sitting directly in the sun. This has been a long-disputed question, and I am about convinced that the colony sitting directly in the sun will get the most honey, and will be much more easily handled.

The beekeepers of California have a rare opportunity to place an exhibit of the bee products of the State in the Exposition Park Building in Los Angeles. C. A. Shirm, care of the Miller Box Manufacturing Co., 201 North Ave. 18, is chairman of the committee appointed last winter by the State Beekeepers' Association. If the beekeepers of the State will send samples of honey to him, he will see that it is properly placed. Send about a quart of extracted honey with the name and address of the producer, the source from which produced, and also the locality where made. Don't forget the choice comb honey, too. Please send it by express, collect. Let all help to make this exhibit a credit to the beekeepers of California.

Corona, Calif. L. L. Andrews.

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In Iowa.—Thru the efforts of the county associations there are in process of establishment demonstration apiaries in the following counties: Chickasaw, Emmett, Hardin, Johnson, Mills, Pocahontas, Pottawattamie, Scott, and Van Buren. These apiaries are to be established and maintained in the county as a means of co-operating with the extension activities of the College. These apiaries will serve as a silent teacher to the beekeepers of the county and will give the beekeepers a chance to see the value of modern methods of beekeeping. In many cases the summer meeting and field meet will be held at these demonstration apiaries. The value of these dem-

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onstration apiaries will soon be realized by every association in the State.

The cold, backward spring weather was very discouraging to beekeepers everywhere. At this time dandelions have not bloomed and nothing has been gathered from fruit bloom. In this vicinity the season is fully three weeks late. This will mean that the building-up period will be greatly reduced, and therefore extra care will be needed to put the colonies in the best condition for gathering the main honey crop. The weak colonies, which are so numerous this year, will not have the usual opportunity to make a good record. The bright ray of hope, tho, is the excellent prospects for a good flow from clover. This source of surplus honey has been very short during the past two seasons.

Honey has been in demand locally since the tremendous jump in the price of sugar. Those who are having trouble in disposing of their honey still persist in determining the size of package in which it shall be sold. The consumer wants the honey in a package to suit his fancy, the difference in cost not being a major consideration.

The present demand for honey and the general crop conditions are causing some to consider the matter of a fair price for honey for the 1920 crop. The early opinion is that the price this year should not be increased over that of last year. However, the high price of sugar and the heavy loss of bees will tend to increase the price. Of course, sugar might return to a low price; there might be an unusually large crop of honey; and the market might be flooded with the remains of the 1919 crop, but we hardly think the price of honey will be lowered by these factors.

As a matter of maintaining price levels and standards, more attention must be given to marketing. More honey should be disposed of locally. This does not mean that honey sales should be restricted to people within a town, or even county. But the producer can perfect his disposition of sales by direct communication with the consumer. A means of increasing sales that is untried by most beekeepers is advertising, yet experience has shown conclusively that advertising will do for honey what it is doing for every other product that is today offered to the consumer. To want honey people must know about it, the consumer must be given the information, they will not search for it. F. B. Paddock.

Ames, Iowa.

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In Ontario.—Since sending in my copy a month ago, we have been treated to four weeks of very cool and somewhat dry weather. There have been only a few days in which bees could fly at all, and, of course, hardly any pollen has come in. Bees are backward, as a rule, and I should estimate that they are only 75 per cent efficient, as compared with a month ago. No, 25 per cent of the colonies have not died, but I think they would average 25 per cent weaker. Clover wintered so well that it stood the adverse weather all right and is now looking good. However, it is very backward, which is perhaps a good thing, as it will give bees a longer time to build up for the clover.

Altho sugar is now very high, and dealers report a big demand for corn syrup, yet I am sorry to say they report honey sales as being very slow. Why this is the case I am at a loss to know, unless, as already stated in former issues, honey in small quantities is too high in price for the average consumer. At least they **think** so, and as long as they are of that mind it makes little difference what we beekeepers think about the matter. Educating customers to buy in larger quantities and at lower prices than they pay for the small packages seems to be the logical conclusion we must arrive at if we wish to be fair in the matter.

Mention was made in the last issue about the aluminum combs I have in one colony. As intimated, the weather has been very cool for the last four weeks, and these two combs were in a hive with no packing, except that there were newspapers as well as quilts over the tops of the frames, and all covered by a water-proof telescoping cover; so naturally it was a pretty good test to prove if the bees did really object to the metal combs in cool weather. About twice a week during all this cool weather when nearly all the mornings were below the freezing point, I would lift up the cover and take a peep at the clustered bees. The same condition was always noticed—bees were jammed in solid from one end of the hive to the other, but all on the four combs at one side of the hive, the side of the hive enclosing one side of this long narrow cluster, and the first aluminum comb being the dividing line on the other side. Yesterday (May 6) it was warm and sunny and the bees were carrying pollen nicely; so I proposed to have a look inside and see how things appeared. Bees in other hives near this one with aluminum comb had brood in from three to four combs; but brood was in the front end of the hive mainly, since clusters, as all know, usually expand from front to back of hive, especially if colonies are only of medium strength and in unpacked hives. This was the condition of all we examined that were on all-wax combs. But on opening the hive with the aluminum combs I found just what one would expect, after seeing the long cluster at one side of the hive week after week, even when the weather was quite cold. The first comb next to the hive side had honey and a little fresh pollen in it but no brood. The next two combs were practically solid with brood

from one end of the hive to the other. The fourth comb had some pollen in it, and the side next to the brood was cleaned out ready for the queen to deposit eggs in it. The next comb, one of the aluminum ones, had nothing but old honey in it; and, of course, the remaining two were just the same. As I stated in the last issue, I have no comments to make, as one hive with two combs in it does not justify too hasty conclusions. But one thing is sure, the bees in that particular hive have no use for aluminum combs in cold weather. J. L. Byer.

Markham, Ont.

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In North Carolina.

Eastern and central Carol'ina beekeepers are in the midst of the swarming season when the old-time gum and box-hive beemen are just hiving swarms, and those using modern equipment and standard methods are "running thru" their hives cutting queen-cells and getting supers placed for the approaching main honey flows. Indications now are for an excellent season. The early flora is yielding in special abundance, bees being able to store honey very much more rapidly at this season than has been the case in many years.

The State and Federal co-operative extension service for the improvement of methods of beekeeping in this State has been especially active for several years now. In the southeastern section of the State, notably the lower Cape Fear region, there is taking place especially marked improvement in bee culture, especially in changing from the old gums to the standard hives with Langstroth frames. And this improvement is largely due to efforts of the Government bee specialist, C. L. Sams, who is going into every quarter of the State demonstrating and lecturing on modern methods in bee culture.

A notable undertaking of the kind was the transferring of about 150 hives from the old gum to the improved hives at the D. G. Kelly apiary near Caintuck Landing, 31 miles up the Cape Fear River. This apiary was purchased last fall from Mr. Kelly by W. J. Martin and is one of the chain of lower Cape Fear apiaries that Mr. Martin is establishing. This transference, which required six days, is the biggest undertaking of the kind on record in this State.

In transferring the bees the old gums were turned upside down and the bees drummed out and dumped into the new hives, with full sheets of foundation and specially prepared frames of brood, the new hives being placed just where the old gums had been. Then the old gums were taken to a bee-proof tent where the brood comb and some honey were fitted into frames and hung in the new hives, other frames with full sheets of foundation being added to fill the brood-chamber. Surplus choice honey was placed in containers for home use, and that in old and dark combs was dumped into barrels to be fed back to the bees just after the honey

The D. G. Kelly beeyard, lower Cape Fear apiaries, showing the greater part of the yard after the bees were driven from gum hives into Standard hives placed on the old stands. In order to minimize confusion among the bees, the new hives had to be placed for a time just where the old gums were; so the arrangement is not what it should be to avoid drifting.

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flow when the colonies are to be doubled in number. There was a great amount of old combs not yet filled with honey this season that went into a huge pile to be later rendered into beeswax. Mr. and Mrs. Kelly are greatly interested in the improvement brought about in their old gum apiary, and both will assist in caring for the colonies now in modern hives.

A few of the huge "gums" from which the Kelly bees were transferred to Standard hives. The barrels contain the lowest-grade honey to be saved for bee feed. The shack in the rear was occupied by Mr. and Mrs. Sams during the week of transferring.

The Caintuck section is noted for its honey resources and for its great number of owners of gum-hive beeyards. Mr. Sams believes that the establishment of this thoroly modern apiary in the heart of this region will have the effect of greatly quickening the interest in improved methods of beekeeping, and that before a great while gum hives will be decidedly the exception, thereby multiplying many times the honey production of this section. Mr. Sams is now in the northeastern section of the State making demonstrations in this same work of transferring bees, in co-operation with a number of county agents.

Raleigh, N. C. W. J. Martin.

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In Texas.— The weather for the past month has been very unfavorable; very little rain has fallen in the State; very dry weather, accompanied by high winds and northers, have given the bees a very severe setback. Feeding is the order of the day, and where not done many stands of bees have starved. In southwest Texas the bees are making a bare living, in the central portion conditions are better, but north and east they are far below normal. The same weather conditions are holding the honey plants back. Where the frosts of last month killed back many plants, now new flower buds are just ready to open. This is true of mesquite, honey locust, dewberries, and others. Texas beekeepers are a very optimistic class; while reporting the above adverse conditions they are unanimous in the belief that the prospects are yet favorable for a normal honey crop, and that a week of good weather will bring on a heavy honey flow.

The shipment of queens and bees in combless packages has started off nicely. The cold weather has retarded the rearing of queens somewhat, but most of the queen-breeders are able to fill their contracts on schedule time. The fact that the spring is backward in the North is a great advantage, as buyers are asking that shipments be held up until warmer weather. Shipments of combless packages as early as April 15 were successfully made.

The whole cotton-raising portion of the South is interested, as never before, in cotton. The relationship of this plant to the pink boll worm, the boll weevil, and the honeybee are subjects of the everyday conversation of farmers, business men, and entomologists. Today, as the planters are planning to test the methods of Coad and Newell for boll-weevil control by means of the application of arsenates in the powder form, the beekeepers are asking what effect this poison will have on the bee. I am forced to say I can not give the least information. Plans are already made to dust many acres of cotton in Texas, and the Experiment Station is planning to gather data on this subject, including the action of the poison on the honeybee and the supposed storage of arsenates in honey.

The queen yard of the Experiment Station apiaries has been able to distribute its first queens. One of the objects of this yard is to put good queens in the hands of farmer beekeepers who have black or hybrid bees, and thus improve the bees of the State as a whole. To do this, a ruling was made to send out but a very few queens to one party. Notice of the distribution of the queens was made thru the farm journals of the State. In 14 days after the notice was put out, over 100 applications were received. Of this number, three-fourths were farmers whose names were not on our list of beekeepers. These men are interested in the general betterment of farm work and are in the process of putting the bees in proper shape.

County Agent O. S. Gray of Ellis County is an enthusiastic beekeeper. Among his other farm organizations is a boys' bee club of 15 members. These boys own from one to seven stands each. Most of the boys are entering their second year of bee-club work. As an incentive to better work each one of these boys will receive an Italian queen, the gift of the county agent. At the annual boys' club fair this fall the bee section will have an exhibit.

When cold and drought put an end to the

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blooming of the early spring flowers the first of the month, the prickly ash came to the rescue of the bees. This tree (*Xanthoxylum clava-Herculis*) is very abundant in Texas east of the Brazos and not uncommon elsewhere. It blooms from the middle of April till the middle of May. The nectar flow is abundant and surplus from it is common. Had not the drouth stopped the blooming of the other spring plants, there would have been a surplus this spring. This plant belongs to a famous nectar-bearing family; the prickly ash of the East (*Xanthoxylum americanum*), waffer ash (*Ptelea trifolia*), Celina (*Xanthoxylum Pterota*), and all of the citrus trees are included in this, the Rue family. H. B. Parks.

College Station, Tex.

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In Florida.—During the last few months some bee journals have been advising beginners to hive all swarms on drawn combs or on narrow starters only, in preference to full sheets of foundation. The Dadants tell us we can give the small swarms full sheets, but the big ones must have only starters. The reason advanced is that a big swarm will weight down and stretch a few rows of cells at the top of the frame, and a small area of drone comb will be the result. Mr. Wilder, in his Southern Bee Culture, gives the same advice, but for a different reason. He contends that the big swarm is equipped for comb-building and will build the combs from starters as well as from full sheets, while a small swarm needs the additional help that full sheets of foundation will give. While I do not wish to criticise the writings of men who have had far more experience than I have had, I do wish to register a protest against such advice being given indiscriminately. Such practice may be satisfactory in some localities, but in Florida it will not do at all, and will only result in many would-be beekeepers' wasting the energy of their bees in building a worthless set of combs that will have to be replaced later under less favorable conditions. In Florida most of the swarming occurs during the orange bloom, when the yield may be from five to fifteen pounds daily, and a big swarm will build a set of combs in two or three days. If given only inch starters, the result will be 50 per cent drone comb.

It is easy to say "use drawn combs," but no beginners in Florida ever have any drawn combs for the simple reason that moths destroy a comb in a few days, and, even if they had them, it would be best policy to use them in extracting supers. To take a frame of brood from the colony that has swarmed and place it in the new hive for the swarm to cluster on, filling out with full sheets of foundation, is first-class advice for the benefit of the swarm, as it will be a sure preventive of absconding; but the theory that the weight of the bees will center on the given comb does not apply when anything but a very small swarm is considered. The only advice that should be followed by beginners is simple and has been given repeatedly. No one can afford to fool with starters, for, with a frame properly wired and filled with **medium brood** foundation, there will be so little sagging that it will not pay to take the risk of using anything else.

The year 1919 was one of the worst seasons Florida has experienced. With the exception of the Apalachicola region and a few favored locations in the South, there was no honey flow after the orange, and heavy feeding was necessary during the summer and in the fall. Cabbage palmetto did fairly well where it was plentiful and saved many apiaries from starvation, but the fall flow was a failure almost all over the State. Heavy winter losses were the result, and colonies that were saved were in such poor condition that the best orange flow since 1914 was wasted in the spring for lack of bees. I have often been asked why we cannot build up the bees by stimulative feeding; but when there is no pollen in the hives and none being gathered, feeding is of little use; also, this year the weather was not suitable at the time when feeding would have been beneficial, if we had had the pollen. Stimulative feeding to secure a crop of orange honey is not favored by any beekeepers I have met. It is altogether too risky, even if it were practiced, for there is always the danger of frost killing the bloom. This year there is very little orange honey in Florida, as the cold in March destroyed the bloom in many sections, apart from the fact that the bees were in such poor condition. The crop of orange honey in three years out of four is always made by the bees that are raised during the previous October and November, and it is at that time that stimulative feeding might be beneficial; but our Northern friends, who think they could teach us something, should remember that when we get the usual fall flow the bees will breed without feeding, and when there is no flow there is no pollen to make feeding of value.

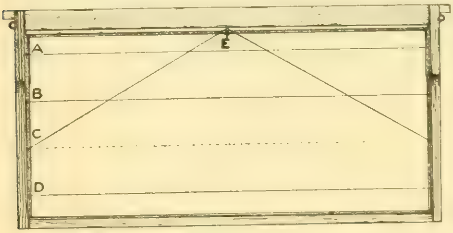
Everyone seems to be looking for a big crop of saw palmetto honey, and where it was not hurt by forest fires the prospect is very good. We cannot tell much about it yet, for we have all seen a big bloom give very little honey, and a small bloom give a big crop. Crops are an uncertain proposition in Florida, except the crop of sand flies and mosquitoes, and that is surely a bumper one this year. Harry Hewitt.

Apopka, Fla.

HEADS OF GRAIN FROM DIFFERENT FIELDS

A Very Clever Trick of the Trade. One of our men here has discovered a new trick in wiring frames, that is very clever, to say the least. It is very simple, too. Absolutely no change is needed in the wiring-board or the regular standard frames with four holes two inches apart in the end-bars.

The frame is wired in the regular manner with four horizontal wires; but, before cutting the wire and twisting the ends over the tack head, the next-to-the-bottom wire is pulled out so as to leave a little slack. It is then drawn up and slipped over a tack head driven into the rabbet on the under side of the top-bar midway between the two end-bars. The wires are then all drawn taut and the ends fastened.



The next-to-the-bottom wire stretched up to the top bar and slipped over a tack head.

In order to admit of electric imbedding the foundation should be inserted between the three horizontal wires and the diagonals just before the diagonal is hooked over the tack head. This leaves the three horizontal wires on one side of the sheet and the two diagonals on the other. There will then be no "short circuits" and no burning of the wires when using electricity to imbed, because the sheet of foundation will "insulate" the wires at their cross-section.

The only possible objection will be that the next-to-the-bottom horizontal wire will be missing. But there is not any trouble from sagging at this point with the ordinary wiring. Where the foundation **needs** supporting is at the intersection of the wires near the top and along the lines of the diagonals.

However, if anyone prefers extra support along the dotted line, he can easily insert an extra wire and imbed with a hand tool after the other wiring is completed.

The nice feature of this trick is that it requires no change in supplies, apparatus for wiring, nor for electric imbedding. It takes only about two inches more of wire, and, in our judgment, it is far superior to the old scheme of four horizontal wires. It takes hardly any more time, and we believe it will answer all practical requirements for the non-sagging of a sheet of foundation or comb. E. R. Root.

Preventing After-swarms. About 35 or 40 years ago the plan was given out for preventing after-swarms by setting the new swarm beside the old hive and moving the old hive in seven days to a new stand. [Evidently Mr. Deneen intended giving the plan of placing the old hive beside the new one, on the old stand, and tearing down all capped queen-cells and seven days later moving the old hive to a new stand.—Editor.]

I tried the plan as then set forth, but found it entirely unreliable; about one in four or five would send out an after-swarm, doing so with an egg or larva in the queen-cell cup. Because of such delayed hatching of the virgin queen more time was given for the development of field workers, thus causing a favorable condition in the hive for throwing off an after-swarm. The correct method is to look the queen-cells over after the prime swarm has issued, determine the date of the capping-over of the first cell or cells; the seventh day from that date will be the right time to move the old hive to the new stand.

To illustrate, suppose they have delayed swarming three days after the first cell or cells are capped over; in that case the correct time to move the old hive to the new location will be four days from the time the prime swarm issues.

On the other hand if there should be, say, one-day-old larvæ in the cells, the hive should be moved in eleven days after the first swarm has issued.

The cause for the prevention of the after-swarm has been vaguely and erroneously attributed to the loss of a few bees thru their going back to the old stand. The actual scientific reason, however, is due to the fact that the honey flow has stopped in that hive at the time of the emerging of the first queen. With no honey coming in, the instinct of self preservation impels the bees to destroy the remaining queen-cells.

Imlay City, Mich. C. E. Deneen.

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Getting Brood in Outside Combs. E. R. Root says in his article on wiring, page 79, February Gleanings, that the queen "will not lay in the two outside combs." Why do you say so? and why doesn't she lay there? Some of my queens have laid in every one of the ten full-depth frames, in both sides of them, and this is away up in Canada.

When starting with bees, and being told that queens never used the outside combs, the idea of a 20 per cent loss of space in the brood-chamber appealed to me as a tremendous one, even tho honey or pollen might be partly stored in the two outer combs. Visions of protecting the sides of the brood-chamber came to me; but, on handling bees

HEADS OF GRAIN FROM DIFFERENT FIELDS

for a time and gaining experience, I found the warmest lining for a brood-chamber is bees, and lots of them. Judging by some apiaries, it seems to be taken for granted that the queen has no use for the outside combs, and nothing is done to encourage her there. As a rule, these frames are full of pollen and honey, and spaced so close to the side wall that no good queen would have sufficient room to lay in the outside of that comb.

My frames are 1⅜ inches spaced between centers, and there is a ⅜- to ½-inch space between all the outside frames and the hive wall; this is provided for by having a nail or piece of wood projecting from the hive wall to keep the outside frame properly spaced. No followers nor division-boards are used in these hives. The wide spacing on the outside, besides giving the queen room to work, gives space for two or more layers of bees to keep warm the brood that should be there. Should the two outer frames be pollen-bound or honey-bound, they are, of course, exchanged for worker combs when there are seven or eight frames of brood in the hive, and the combs taken out placed at the sides of a super full of combs. This super is now put below the brood-chamber if the weather is cool, and above if weather is warm, to give required room, and also to help prevent swarming.

Hamilton, Ont. John Y. McLeod.

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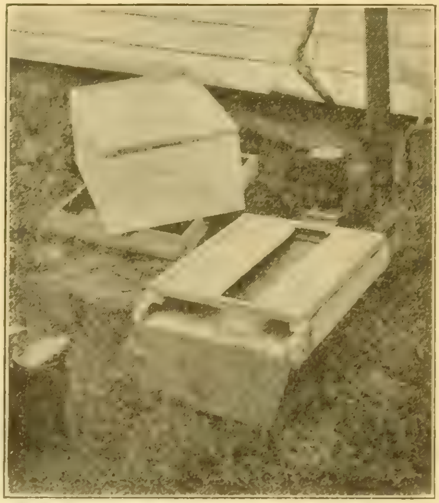
Serious Loss of Colonies. In February Gleanings mention is made of the Isle of Wight disease. In the summer of 1918 I noticed one of my colonies pulling out some of the bees. They were very dark and shiny, and the abdomen was badly swollen. They seemed to have lost the use of their legs, and their wings trembled. A few of them could fly. On opening the hive I found a good many inside the hive affected. The next season 1919, my neighbors, who were box-hive beekeepers, began to complain of losing their bees. One man, living about ½ mile from me, had between 50 and 60 colonies; he lost all but five or six. Another neighbor about the same distance away had 60 colonies; he lost all but 10 or 12. A third man had 50 colonies and lost all but three. So you see that the disease was pretty destructive. I was a little more fortunate than the rest, having 41 colonies and losing one. My bees are a good strain of Italians. However, I find I have four or five colonies that are still affected. I shall requeen them in the spring, as that seems to be the best thing I have tried yet. I have been keeping bees ever since I was 16 years old. I am a man of seventy now, and this is the first of the Isle of Wight disease I have ever seen.

Chetopa, Kan. H. G. Merrill.

Ventilator for Controlling Swarming. This swarm-controller is of the same size as an inner hive-cover with an opening 4 inches wide running from the back to the front of the hive. This space will admit, when needed, a Boardman feeder in the back of the hive.

I place the controller between the bottom-board and the brood-chamber, having the ⅜-inch space under the frames. As soon as there is a likelihood of queen-cells being started, I pry the hive with the controller, raising it from the bottom-board about ½ to 1 inch, placing blocks under the front corners. This causes a free circulation of air under the center of the cluster. The swarm-controller allows no cool air to make a direct draught on the under side of the outside frames. Because the combs at the sides of the hive are warm, the queen will expand the brood-chamber. During the warm months the hive and swarm-controller should be raised from the bottom-board about two or three inches or even more, so as to give the bees a place to cluster without hanging out, and an ample space for ventilating the hive.



Ventilator in place on bottom-board.

This swarm-controller I have used successfully for three years in Jamaica, but have tried it out in this country only in a limited way. In Jamaica, the first year I used it, I found that out of 200 colonies, increased during the season to 300, not one swarm issued. The second year, I was late in adjusting the controller and a few colonies swarmed, but after the controllers were put on the hives, all the swarming was done away with.

Medina, O. J. E. Thompson.

HEADS OF GRAIN FROM DIFFERENT FIELDS

How to Find a Black Queen. To find or strain out the queen with an excluder, remove from the brood-nest all combs except one of brood, brushing off the bees to the bottom. Put on the excluder, and above it put the hive containing the combs of brood and honey that were taken from the brood-nest. Nearly all the bees will go above, leaving the queen and a few workers below, which in an hour or two will be nicely located on the comb of brood in the lower story. Then the position of the hives is reversed, putting the hive with the comb of brood, queen, etc., above where one can easily find the queen, and then return the comb of bees to the bottom hive. There is no trouble finding a black queen in this way. C. E. Corbett.

Currie, N. C.

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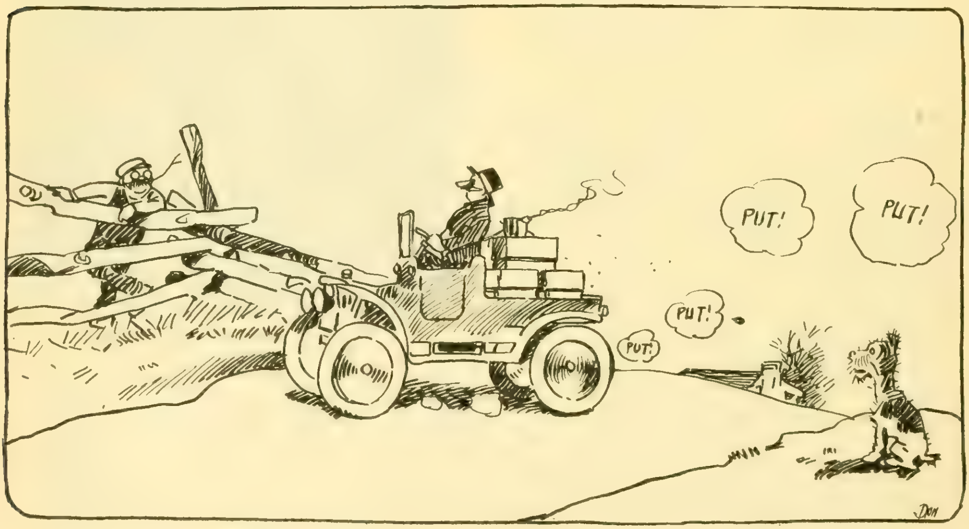
The last word of the article, page 207, April Gleanings, Dr. Kohn says, should read ''queens'' instead of ''bees.'' In his experience with package bees, he finds he loses about 10 per cent of the queens, and rather than to wait for more queens to arrive he orders 10 per cent extra with the shipment. If not needed, he uses them with nuclei.

Out Apiaries.—By Bill Mellvir

(With apologies to Walt Mason.)

Nowadays we see the master in the apicultural art putting bees on many pastures, sometimes forty miles apart. For he coaxes them from swarming by the latest tricks of trade; so the way they're now performing leaves the old way in the shade. And he has a choo-choo wagon made of bolts and tin and rust, so we never see him laggin' back of horses in the dust. Oh! I see this modern wizard teaching bees they must not swarm! Say, it thrills me to the gizzard just to see this gent perform. Once a week he looks things over, visits each and every yard, while the flow is on from clover and the bees are working hard. Swarms now look to him like fakers with their rush and roar and hum. Swarming bees are mischief makers—they're the bummest of the bum. Oh! the soothing satisfaction of a mind at perfect ease coming from such comely action of our modern managed bees. As I watch an up to dater, olden times return to me when I was a swarming hater as I shinned the tallest tree. Words then used I do not mention; they would melt my faithful pen. How I longed for swarm prevention which was not invented then! To the outyard I'd go chasing with an old horse pulling me, who could spend the day in pacing thru the shade of one beech tree. Oh! I wished I had a motor and a highway that was fit when old Dobbin was my toter—cars were not invented yet. All my better years were squandered chasing swarms and pushing reins; down the weary way I wandered slow as goose grease thru the lanes. Hail the beeman up to datest who controls the swarming game! Hail the sturdy motor latest with its little tinny frame! Hail the highway smooth and tarry, of its dust and mud deprived! Paths of beemen now are flowery. Lo! beekeeping has arrived.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GLEANED BY ASKING

Iona Fowls

QUESTIONS. (1) In a time of cold weather some of my bees destroyed a lot of drone brood. Will they destroy worker brood at such times? (2) We have had a short flow which is now at an end. Several colonies are killing drones. The main flow starts in three weeks. Will the stopping of this flow have a bad effect on brood-rearing? I mean on the eggs that are already laid. They have plenty of honey.

Arizona. Burns Wood.

Answers.—(1) If bees begin brood-rearing too early in the spring, and cold weather follows, it sometimes happens that the bees are unable to keep the brood sufficiently warm and that it becomes chilled. In such a case the bees will be found carrying brood out at the entrance. They do not themselves destroy it, but simply remove it after it has already been chilled. If at any time, however, a colony runs short of stores, the bees do destroy the drone brood, and, unless provided with stores at that time, they will also remove good worker brood. (2) When another flow follows so soon after the first one, it is often an advantage to feed colonies a little during this time so that they will continue brood-rearing. If the second flow is of long duration, the brood raised in the intervening period might have time to develop into field workers to gather honey in the second flow; or, if the flow was shorter, the brood might at least develop into nurse bees that could take the places of other young bees that could thus be liberated from the duties of the hive and become field workers sooner than they ordinarily would. Furthermore, if the colony continues raising brood during this period, the brood-nest will be in more normal condition and will not become crowded with honey; therefore, when the honey flow begins, the honey will be stored above where it should be. If there is plenty of honey in the hive but the bees are not fed, the bees will continue raising the worker brood that is already started, but the queen will not lay as rapidly as when honey was coming in.

Question.—If a queen is not mated and comes thru the winter O. K., is it possible she will mate in the spring? Chas. H. Sladek.

Illinois.

Answer.—There is little likelihood that she will be mated. In all probability she will be a drone-layer, altho a very reliable authority reported to us a case in which the queen was apparently mated after this length of time.

Question.—Do bees put more beebread in combs than they need? Some of my combs are full. I think I shall remove some of it. Ed. Coates.

Oregon.

Answer.—In some locations where pollen is very plentiful, bees do sometimes store more beebread than they need, and in some cases it is often necessary to remove pollen from such combs; but before removing it one should be certain that his locality is not such that a pollen dearth might occur before the bees are able to store pollen again. If there is any danger of this, it would be well to keep a few of these pollen-laden combs for use next spring. For, during the breeding season, if the bees are unable to gather sufficient pollen, breeding will be curtailed and the result will be fewer bees for the honey flow.

Question.—In selecting a location for bee culture, what are some conditions best to avoid?

Massachusetts. Fred W. Stillman.

Answer.—The bees should be so placed that there will be no danger of their annoying passers-by. If it is necessary to place them near a highway, a tall hedge or building should intervene so that the bees will be compelled to fly high above the roadway. A good location would have a windbreak on the apiary's colder sides which are usually the north and the west. A group of trees or a hedge is a better windbreak than a solid fence, which causes the wind to shoot over it and then down upon the hives. A little shade is an advantage in an apiary, but it is better to have no shade than to have too much. Apiaries should never be located next to a field that is to be cultivated, as there might be some danger of the bees' troubling horses when at work there.

Question.—This entire country is covered with live oaks—and such a pollen flow as they are giving this year! The trees are just humming with bees. You can strike a limb a sharp blow and the air will fairly turn green with pollen. The other day while walking around I was surprised to see a number of bees flying along some of the bare limbs that had shed their leaves, and I noticed they would stop and seem to suck at something. When I investigated I found that at almost every place there was a bud, there was a small drop of water, clear fluid, and upon tasting it, it proved to be pure sugar syrup, so thick it wouldn't run. I found one limb about eight inches long that had five large drops on it. I can't account for this, unless it was caused by the buds' being bruised in a light hail about a week before. John W. Hendricks.

Texas.

Answer.—Often we receive reports of branches of oak trees being covered with small galls from which a sweet liquid flows. In reality these are not galls, but plant insects that have an astonishing resemblance to galls, and the liquid is only honeydew.

Questions.—(1) Which is the better, full sheets of foundation or only one-inch starters? (2) How does foul brood look? (3) If there are two queens in a hive, which one will leave the hive in spring, the old queen or the young one?

Pennsylvania. Norman J. Lutz.

Answers.—(1) The full sheets of foundation are greatly preferred to the inch starters, for the full sheets result in much straighter, more perfect combs. (2) There are two diseases called foul brood, European foul brood, and American foul brood. The two are entirely different diseases, requiring quite different treatments. American foul brood attacks sealed cells mostly, the cells being sunken in appearance and showing irregular perforations in the cappings. The affected larvæ nearly always are found on the lower side wall of the cell. Such larvæ are yellowish brown to blackish brown, and, as they decay, have a very offensive odor, become ropy or stringy, and may be stretched out several inches in a delicate thread. After this stage the dead larvæ dry into hard scales which adhere tightly to the cells. European foul brood attacks unsealed brood mostly. The affected larvæ may be found on any of the walls or base of the cells and are usually a light yellow. This decayed matter may also have an unpleasant odor, but not usually so offensive as in the case of American foul brood. The diseased larvæ reach a ropy stage, but, instead of roping as a fine thread, stretch out as a coarse granular thread. When scales are formed they do not adhere tightly to the cells as in the case of American foul brood, but may be removed. This disease attacks drone and queen larvæ almost as readily as worker. If one has trouble in determining with which disease his colonies are affected, he should send a sample of the comb for diagnosis to the Bureau of Entomology, Washington, D. C. For this purpose a piece of comb about five inches square and containing a number of affected larvæ should be sent in a wooden box. (3) When a prime swarm, that is, the first swarm of the season, issues, it is accompanied by the old queen, and there is left for the so-called "old colony," or the parent colony, ripe queen-cells from which will come a virgin, which, after being mated, will become the mother of the colony.

Questions.—(1) Is a smoker necessary in taking the honey out of the hives? Will the bees sting me when I open the hive without bee-veil or gloves? (2) Are strawberry blossoms any good in producing honey? (3) How is the best way to make a swarm of bees light on an object? Suppose I was in the field and a swarm of bees passed overhead, how could I make them light on an object so that I could capture them? Victor Parolek.
Nebraska.

Answers.—(1) Altho it is possible to open a hive and remove honey without a veil or smoker, we do not advise the practice. When working with the bees the beginner should wear a veil, and should certainly have a smoker ready to use in case it is needed. Usually a puff or two of smoke is a decided advantage. Many wear gloves when they begin beekeeping, but after more experience is gained the gloves are usually discarded. (2) Strawberry blossoms produce nectar, but in small amounts, valuable only for aiding in brood-rearing. (3) If you were in the field when a swarm of bees passed overhead and no water was handy to throw into the swarm, you could probably stop them by throwing handfuls of dirt into the swarm where the bees seemed the thickest. They would then light on anything handy, or on the ground if no bush or shrub was near.

Question.—Colony No. 1 is an exceptionally good one with an extra-good queen from which I desire to produce some queens. This colony swarms leaving a choice lot of queen-cells. I desire to requeen colonies 2, 3, and 4. Can I remove the queens from these colonies and put queen-cells from colony number 1 in cell-protectors and give one to each of the colonies I desire to requeen?
Pennsylvania. Geo. W. Meyer.

Answer.—If the colonies are hybrids and especially hard to introduce to, it might be well, after removing the queen, to wait two or three days before giving the queen-cell, but ordinarily it would be safe to give the cell in a protector immediately, provided the cell would not hatch for two or three days.

Question.—Upon recent examination I find many of my drawn combs cracked from cold. Can these be used again, that is, will bees mend them? They were stored in the loft of the barn exposed to extreme winter temperature. Should they have been stored in a warm room? W. E. Reim.
Wisconsin.

Answer.—It is not necessary to store combs in a warm place. In fact, we always leave our combs stored in honey-houses in which there is no heat whatever. If the combs were empty as they usually are when stored for winter, they would not have cracked because of the cold. But when combs contain honey, they sometimes become cracked in winter and the honey oozes down the comb. We wonder if you are certain those combs were not cracked when you stored them. They may have been slightly broken in the extracting without your knowing it. There is no reason why these combs should not be used. As soon as a little honey begins coming in, it will be found that the bees will readily mend them.

Questions.—(1) Is there any danger of the queen's flying away when one is trying to clip her or put her on another comb? (2) If I cover the frames with burlap next winter, will the bees gnaw it? Frederick Spiker.
W. Virginia.

Answer.—(1) Yes, they do sometimes fly at such times. When this happens, the best thing to do is to cover the hive so that it will have its usual appearance and then move away from the hive in order not to confuse the queen and cause her to enter the wrong hive. In a short time she will probably return to her own hive. (2) Quite likely, after the bees become active in the spring. More than this, the burlap is so loosely woven that the bees, in their efforts to remove it, loosen from it such long fibers that these sometimes cripple a few bees by becoming wrapped about the feet or body. When this happens to the bees it is a small matter since so few will be thus disabled. But one time one of our best queens was crippled in this fashion. Perhaps this might not happen again for years, but the one experience was enough for us, and since then we prefer a mat of canvas, or, better still, brussels carpet.

BEES, MEN AND THINGS

(You may find it here)

EVERY one here seems to have a bee-craze and wants to buy bees. It is a good time to sell. We had late rain here that will bring some honey. This county seems to be a great country for queen-rearing and the package bee business.''—Pat Keating, Santa Clara County, Calif.

''The death of Lewis Cass Woodman, age 72 years, occurred on May 3. He was the father of A. G. Woodman of Grand Rapids, Mich., and had been engaged in beekeeping for over 45 years, keeping as high as 400 colonies of bees in connection with fruit farming on an extensive scale. His first experience in bees was a purchase of 10 colonies for $150 in the fall of the year, and the next spring they were all dead. He immediately purchased more bees and has been in the business continually ever since that time.''—A. G. Woodman Co., Grand Rapids, Mich.

''Bees in this locality are in the most peculiar shape I have ever known at this time of the season. I have but very few colonies that have any brood at all. All have eggs, and have had them all this month, but if the eggs hatch the larvæ starve at once. I suppose this condition is due to confinement and a lack of pollen. I am keeping about half of my outfit alive with sugar. If it had not been for the sugar that Gleanings obtained for me, this spring would have nearly put me out of business. Clover is in a wonderful condition. The winter loss to date among the small beekeepers about here is 75 per cent.''—A. C. Ames, Wood County, O., April 27.

''Bees are doing nothing here. No good rains since December. Drones all killed off after the last late frost. Queens in colonies not fed have almost quit laying. I am still feeding nearly half of my stocks.''—E. P. Stiles, Travis County, Texas, May 4.

''Because of the unusual lateness of spring and the cold rainy weather that has prevailed during the past few weeks, we are having to cancel many orders that we should have been able to fill if the season had been anything like normal. We are notifying customers of delayed shipments, returning money, doing everything possible to take care of our end, but will no doubt receive some complaints.''—W. D. Achord, Apiarist, Bullock County, Ala., April 30.

''In all my experience with bees during 40 years, I have never seen them in such splendid condition as now. I have 40 colonies and they have from 12 to 20 frames of brood in all the two- and three-story hives in which I have them. I have found frames that are solid sealed brood not only to the top but to the end bars. One frame did not have a square inch that was not solid brood. The two- and three-story hives were packed full of aster honey. In fact, when I clipped queens the first day of April I did not see how they could find room to lay as the honey was candied. But they evidently found a way to convert it into brood. I requeen every year with swarming and supersedure cells from my best stands.''—S. B. Post, Washington County, Pa., Apr. 26.

''We get large quantities of honey from cotton here. I had one hive produce a surplus of 100 pounds last year from this source. It was a new swarm, hived on full sheets of foundation, and shallow extracting supers with full sheets. It was hived in May and produced this amount of honey from cotton by the middle of June.''—M. F. Fuller, Lee County, Ga.

''The Buckeye Valley formerly had about 12,000 acres devoted to alfalfa in reach of my bees, but the high price of cotton has tempted many. Even my own farm is plowed up and cotton planted, and as cotton is not as reliable for a honey crop as alfalfa, I have been obliged to move a dozen of my apiaries to other locations. Conditions for a good crop of honey look favorable.''—B. A. Hadsell, Maricopa County, Ariz.

''The heavy loss of bees leaves a depressed condition among the beekeepers. At a meeting of the Washtenaw County beekeepers at the apiary of Floyd Markham, north of Ypsilanti, especial interest was aroused by the 50 packages recently received from Alabama, which came in good condition by mail, and as Mr. Markham was prepared to give them excellent care they were already showing considerable brood.'' — Edwin Ewell, Extension Specialist of Apiculture, East Lansing, Mich.

''The season is four weeks late and the spring and winter loss is enormous. Dandelion that usually begins blooming the first of March is now just coming out. About all fruit of every kind is killed and many trees also. Peaches, crabs, and plums were frozen while in bloom. This condition extends over Nebraska, Kansas, Arkansas, and parts of Oklahoma and Missouri.''—J. L. Gandy, Richardson County, Neb., May 1.

''Every beekeeper who has any surplus supplies should put in an advertisement and dispose of them. There is such a great demand and supplies are so hard to get that it would be of mutual benefit and almost a patriotic duty to distribute the idle equipment where it is wanted to increase production.''—W. B. Davis, Kane County, Ills.

''It has been a very backward spring and a great many colonies have died thru the country—as high as 70 per cent in some cases.''—R. F. Holtermann, Brantford, Ont.

TALKS TO BEGINNERS

By Iona Fowls

As stated in the last talk, the bees should be kept supplied with plenty of stores right up to the honey flow. And it should be remembered that during this season when much breeding is in progress, strong colonies will use several pounds of stores weekly. If colonies need to be fed, we advise feeding a good candy rather than syrup since the bees take it with less excitement and less danger of robbing. And during warm weather just before the honey flow, robbing is easily started unless great care is taken.

If our directions so far have been followed, the beginner will now have strong colonies with clipped queens, at least one good comb of honey, and from seven to ten frames of brood. In case of the strongest colonies, there probably is brood in two stories, the queen having access to both.

In case the beginner has already applied the swarm-preventive measure suggested in our last talk, he may now find that such colonies, because of rainy weather, a scarcity of nectar, or the extra super room given them, have entirely given up their swarming intentions. Possibly, at the end of eight days no queen-cells may be found in the hive, or perhaps queen-cells may be found with a hole in the side of each, showing that, for the present at least, the danger of swarming is over. In this case no increase should be made, for, if the bees can be kept contented without increasing, they will store much more honey.

By this time the packing has probably been removed. If not, it should now be taken off and the colonies should be given a larger entrance by withdrawing the entrance blocks. Colonies are not likely to swarm if they have good young queens, sufficient ventilation, plenty of super room in which to store honey, and enough room in the brood-chamber for the queen to lay without being crowded by brood or honey. But, tho unlikely to swarm, they may do so. Therefore, until all danger of swarming is over, the colonies should be carefully examined every seven or eight days to make certain that all within the hive is in right condition.

Robbing.

Just before or immediately after a honey flow or when nectar is coming in very slowly, bees are constantly on the alert to obtain sweets from any source whatever. If the bees find sweets that have been carelessly left where they have access to them, they will soon get the scent and then will most thoroly search everywhere until they find an opening into the honey-house or other place where the sweets are kept. After they have returned to the hives with their load many other bees join them until soon a loud, high humming is heard and the air is filled with thousands of bees darting with great rapidity to and from the source of sweets. If the robbing is not stopped by the beekeeper, there will shortly be a fearful uproar of angry, fighting, stinging bees that will take possession of the entire neighborhood. Such robbing is not only dangerous because of possible trouble with neighbors, but is also very bad for the bees. After they have once enjoyed such an orgy they are more inclined to get started again, and in case there are any weak colonies in the neighborhood they may be entirely destroyed, their stores being stolen and the bees killed by the robbers. Even strong colonies are sometimes overpowered and killed. When the beginner understands the danger of allowing robbing to start, he will, when working with bees, have this continually in mind, and take every precaution to prevent it.

To Distinguish Robbers from Bees at Play.

During the warmest hours of the day, many young bees may be seen at play, flying all about the entrance and making such a commotion that at first glance one might think them robbing, but a closer inspection will show the difference. These bees will be found to be young fuzzy-looking bees. There will be no dark shiny-looking robbers, no fighting nor sneaking, and no challenging of entering bees. The commotion is simply young bees taking their first flight, circling about in front of the entrances in order to mark their locations carefully so that they may know to which hive to return when they take a more distant flight.

How to Prevent Robbing.

If thru any accident honey is spilled on the ground or hive, it should be diluted with water and all traces of sweet removed. Also, if it is necessary to remove any combs from the hive, they should be placed in an empty super and immediately covered with cloth.

When opening colonies during a dearth, but little smoke should be used since the smoke leaves the bees in a more defenseless condition, less able to resist robbers. At such times weak colonies should be left with contracted entrances and their hives should not be opened. The beginner ought never to open hives when bees show a tendency to rob; but, if it is absolutely necessary, let him use a cheese-cloth or netting bee-tent, just large enough to place over himself and the hive.

To Stop Robbing.

If the case of robbing has just started, the entrances should be contracted; and over the fronts of the hives that are being robbed grass should be thrown loosely and kept dampened.

Any colony that seems unable to defend

itself should be placed in the cellar for a day or two, and a hive containing a small amount of honey left in its place. After the robbers have used up this honey they will become quiet; but if no honey is left in the place where they had been robbing, they will soon begin robbing from a neighboring hive.

About the easiest way to stop robbing when but one colony is doing the mischief is to interchange the hive locations of the robbed and the robbing colonies.

Beginning of the Honey Flow.

By consulting an old experienced beekeeper of the neighborhood the beginner may learn about when to expect the different honey flows and especially the main flow. For instance, if he lives in the clover belt, he will probably be told that the flow may be expected to begin from seven to ten days after the first few clover blossoms are discovered. At this time those colonies that have quite a few bees in the first super should be given a second one, but all good colonies should at this time have at least the equivalent of one deep super, no matter whether they are being run for comb or extracted honey.

When bees return to their hives heavily laden, they ought to have a clean entrance to alight upon, instead of being obliged to waste their time and strength in struggling thru weeds or grass such as shown in front of this hive.

Management when Producing Extracted Honey.

For about a week after the opening of the honey flow it is a good plan to allow the queen access to two stories and to keep brood in each. This gets the bees into the habit of storing above, so that when the queen is confined to the lower story by the excluder the bees store above more readily. Whenever combs of brood are left separated from the queen by an excluder, the bees frequently start queen-cells on such combs. These queen-cells should be torn down seven or eight days after separating the queen from the brood.

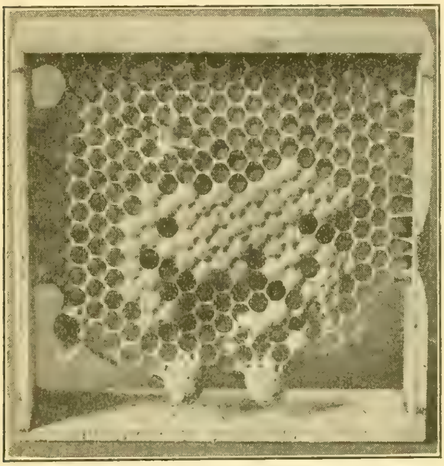
The beginner who has frames of good drawn combs to use in his supers is indeed fortunate, but in most cases he will probably have frames of full sheets of foundation. The full set of 10 should be put on the hive until the bees have drawn out the foundation, then one or two should be removed and the remaining frames equally spaced. This will give more room for storing honey and will result in combs nicely bulged and therefore easily uncapped. When the super is perhaps one-third filled with honey the next super is put on, the two middle frames of foundation being replaced by the two partially drawn combs removed from the first super. This will induce the bees to work in the super more readily. Super room should always be given by placing the new super next to the brood-chamber and placing the full or partly filled supers above it. The only exception to this rule is near the close of the season when the beekeeper is anxious to get his partly filled supers completely filled and yet fears they may need more room before he realizes it. In this case the empty super may be placed at the top above the other supers.

When the weather is very hot, it will be found a help to give more ventilation by moving the inner cover back a little, leaving a quarter-inch crack at the front of the hive. To give still more ventilation, the supers may also be moved slightly backward or forward to give a bee-space, and the hive itself may be raised from the bottom-board by inserting a small block at each front corner. When the hive is raised on blocks in this way, a little smoke should be blown in the opening at the side, when beginning work at the hive, otherwise, the sentinel bees stationed along the crack to protect their home will be likely to dart out and sting.

One might suppose that if all our directions have been carefully followed, no queen-cells would be started, but in a few cases queen-cells may be started in spite of all our care. If so, the beginner is advised to use this plan already mentioned in our last talk. Set the old hive temporarily to one side. In its place put the new hive with nine frames of foundation and at the center one comb with a small patch of eggs and young larvæ and the queen, and above this a queen-excluder and supers, at least the top one containing plenty of room for storing, and on top of all, the hive of brood with capped queen-cells torn down. This hive of brood, it should be understood, is placed immediately over the top super, nothing intervening between them. The hive is then covered with the inner and the outer covers. Eight days later the upper story may be moved to a new location, and the colony left with one capped queen-cell, and a contracted entrance to prevent chilling of the brood. The queen-cell left in the hive should be the best one, long yet plump, with well-defined corrugations on the sides. To avoid injuring the unhatched queen, the frames should be carefully handled and held in the same position in which they were hanging in the hive. If no increase is wanted, tear down all queen-cells about eight days after placing above, and leave the brood to hatch right where it is, thus increasing the original colony. When giving this plan earlier in our talks, we suggested putting the hive of brood immediately above the excluder; but now during the honey flow when it is more difficult to prevent swarming, there should be at least two supers of partly empty combs between the hive of brood and the new hive in order to make the bees of the upper brood nest feel more queenless, and therefore raise a nicer lot of queen-cells, and also to prevent the nurse bees supplied with royal jelly from going below and starting queen-cells in the lower brood-chamber.

Management for Comb-honey Production.

At the opening of the honey flow the bees, the queen, and the brood are crowded into one story and the other removed; then two comb-honey supers are given to the colony. The extra brood may be given to a weak colony or may be used to form a nucleus, a queen-cell or queen being introduced. As already explained, it is more difficult in comb-honey production to get the bees to work in the supers than is the case when producing extracted honey. In order to get the bees started to work in the sections, the best plan for the beginner, provided he is able to obtain a few sections of drawn comb from a neighboring beekeeper, is to place such sections of comb in the center or at the sides of the supers. As soon as the foundation is drawn into comb and the bees have filled the supers about one-third full of honey a new super is given, it being placed under the other two. Other supers should be given as fast as needed, the super which is nearest filled with honey being placed second above the brood-chamber. The empty one should always be placed next to the brood-chamber until near the end of the flow when the bees should be kept more crowded for super room in order that they may finish those already begun. If necessary to give another super late in the flow, it should be placed at the top so that the bees will finish the other supers first. Each super should be removed from the hive as soon as completely sealed. When a super is ready to be taken off, it should be placed above the other supers with a bee-escape board just under it.



When bait sections are used in the supers in comb-honey production, the queen sometimes goes above and raises brood thus spoiling some of the sections. Some beekeepers use a queen-excluder between the supers and brood-chamber to prevent the queen from entering the supers.

By tearing down queen-cells even after they have appeared two or three times, one may sometimes prevent the colonies from swarming and keep them at work. If not, he may find it a help to remove a few frames of brood. (These may be used for building up a weak colony, or for making a nucleus.) If the bees, however, persist in building queen-cells, it would perhaps be just as well for the beginner to allow them to swarm and hive them in the usual way.

When swarming takes place during the honey flow, it is to the beekeeper's advantage to keep as much of the working force of bees together as possible. To bring this about, all but the best queen-cell are torn down, and the old brood-chamber with bottom and cover is not moved to a different part of the apiary, but is placed beside the new hive, with its entrance in the opposite direction so that the returning swarm will be prevented from finding its entrance and will, accordingly, enter the new hive on the old stand. During the following week the old hive is gradually turned about, moving it a little each time until at the end of the week it is close beside the new hive and facing in the same direction. Then during the warm part of the day while the bees are at work in the fields, the old hive may be moved to a new location, a rod or more away, the hive being moved very gently so that the bees will not realize the changed position of their hive. The bees from this hive when returning from the fields will then go back to the old location and help increase the colony in the new hive. And this colony in the new hive is, of course, the one that has the supers and the one that will store the honey.

Swarming.

A person who really wants increase may very well allow natural swarming in either comb or extracted honey production, provided that during the swarming season there is someone at home to hive such swarms. For his benefit we shall explain how one may know when a colony is likely to swarm, how they swarm from the hive, and how the beekeeper should hive them.

Colonies That Swarm.

Strong colonies that cluster on the front of their hives when other colonies are at work or those that start queen-cells are likely to swarm soon, unless some attention is given them. It is true, however, that colonies sometimes start queen-cells only because their queen is old or defective, and they wish to supersede, that is, to raise another to take her place. In such a case one will usually note that fewer queen-cells are started than under the natural swarming impulse, and also the brood will be scatteringly placed, and often a large proportion of drone brood will be present. When this condition is found, all but the best queen-cell should be torn down and the bees allowed to raise another queen to replace the poor one. But if this condition should arise during swarming time, there would be danger that the swarm might issue with the virgin. To prevent this, a nucleus may be made with the frames of brood and bees and the best queen-cell, the other queen-cells being torn down. This nucleus may then be allowed to raise its queen, and after she is mated, the queen in the old hive may be killed and the nucleus united with the old colony. An easy way to unite is simply to place the nucleus hive over the old one with a thickness of newspaper between.

The Issuing of the Swarm.

Shortly after the queen-cells are sealed the swarm ''issues,'' that is, about two-thirds or three-fourths of the bees together with the queen leave the hive. These bees pour from the hives by thousands until in three or four minutes the air is filled with a great cloud of humming bees. Bees are usually good-natured when swarming, for their honey sacs are filled with honey, enough to convert into comb on arrival at their new home, and also enough to sustain them until they are again able to gather nectar. After flying about for a few minutes, they cluster or form in a large ball, usually on a branch of a tree not far from their hive, waiting to make certain that the queen is with them before they leave for their new home, which is quite often a hollow tree in the woods, a place which in most cases has probably been chosen by scout bees sent out several days before.

Hiving Swarm With Clipped Queen.

If the queen's wings have been clipped she will be found climbing helplessly about on the grass in front of the hive, attempting to join the swarm, which, of course, she is prevented from doing on account of her clipped wings. After caging her in a spiral cage, she may be put in the shaded entrance of the new hive of combs or foundation which has been placed on the old stand, facing in the same direction as the original hive. The hive should also contain one comb with young larvæ (very important in case of a queen with wings), and above this hive should be placed the supers removed from the old colony; for the new colony will now work with renewed vim, while the old colony will be composed mostly of young bees, and will probably be without a laying queen for as much as two weeks, and will not be in condition to store any surplus for some time.

In a short time the bees will discover that the queen is not with them, and will, therefore, return to the hive. After they have begun running in nicely the queen should be allowed to run in with the rest.

The old hive should be moved to a new location, all but the best queen-cell being torn down and the entrance contracted to keep the brood warm.

Two or three weeks after the swarm issues, the old colony should be examined for eggs. If none are found, it will mean that the queen has not yet begun laying or that she was lost in mating and that the colony is queenless. In either case the best thing to do is to give them a comb with eggs and young larvæ. If a young queen is present, she will probably begin laying all the sooner because of the presence of the larvæ; and, if the colony is queenless, the bees will undoubtedly begin queen-cells, in which case a ripe queen-cell should be given in a protector or a good laying queen introduced.

A swarm with unclipped queen, captured in a swarm catcher, and shaken upon a sheet placed at the front of the hive.

Hiving Swarm With Unclipped Queen.

To hive a swarm having a queen with wings, the colony should be shaken into a Manum swarm-catcher (see cut above) or into a basket fastened to the end of a pole, and then shaken on the ground in front of the entrance. When shaken a few may return to the clustering place, so that it may be necessary to shake them from the tree several times to make certain that the queen is also captured; for the colony will not stay in the hive unless their queen is with them.

When bees cluster on some unshakable object, such as a fence post, a sheet may be spread on the ground around the post, the bees gently brushed down upon the sheet by means of a soft brush or handful of weeds, the corners of the sheet gathered up, and the bees carried to the hive and allowed to run in.

OUR HOMES

A. I. ROOT

And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat.—GEN. 1:29.

Do good, and lend, hoping for nothing again.—LUKE 6:35.

The wilderness and the solitary place shall be glad for them; and the desert shall rejoice, and blossom as the rose.—ISA. 35:1.

MY dear friends, almost ever since Gleanings was started nearly 50 years ago, I have had more or less to say about the value of sweet clover; and some of the old veterans will remember how I was persecuted for recommending the cultivation of a "noxious weed," etc. But I felt so sure that I was right, I did not feel very much troubled or worried. Well, just now not only the *Ohio Farmer* (page 236, April issue of GLEANINGS) but later the *Rural New-Yorker,* and later *still* the *National Stockman and Farmer,* have taken up the subject, and all seem to agree that the New Annual Sweet Clover is going to produce a "revolution" in agriculture. The *Rural New-Yorker* was so enthusiastic that I was afraid they overdid it; but in their issue for May 1, I find the following:

> We take back nothing we have said about the possibilities of this annual clover for farmers in the North. We would rather add to it.

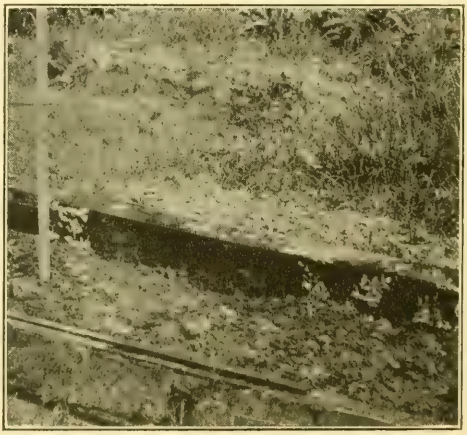
Now, no periodical, and, so far as I know, no person has suggested the great things I expect it to do for *Florida.* When I first began to make Florida my winter home I tried to grow the common sweet clover, and I also discussed the matter with the good people at the Experiment Station of Florida; but the general decision seemed to be that sweet clover, like alfalfa and all the other clovers, could not stand the hot and wet summers of Florida—at least in the central and southern parts. I shall now have to confess that, with all my enthusiasm for the new white annual, it never came into my head until the first of last March that this new annual would make a tall growth, feed stock, produce honey for the bees, and make seed, in Florida, all in one single winter. If it is going to produce a "revolution" here in the North, what will it do for Florida? When I first thought of it, about the first of March, I made haste to plant some seeds; and when I left my Florida home, April 27, we had plants eight or ten inches high. Some of them made a growth of one inch in 24 hours. I submit a picture; and we plan to give other pictures taken every two weeks. It is very unfortunate that I did not think to sow some of the seeds in the fall. I can not at present hunt up any report of this new annual in Florida; but I submit one below from Missisippi:

> I planted 10 seeds in the fall to see if they would stand our winters. The plants came thru winter in fine order. By May 15 they were large enough to plow under for fertilizing. Spring sowing ripened the seed by July 10. I believe it will succeed on any well-drained soil here, and can be sown in the fall, and plowed under in time to grow a fall crop of cow peas or Sudan hay, and also late corn. If this clover succeeds here generally it will be the best soil-renewer. It makes seed readily. J. J. CLARK.
>
> Jackson, Miss., Nov. 10, 1919.

On page 413, July, 1919, you will see a similar report from Bay City, Texas. See report from Hawaii further on.

Well, since this new plant is now getting to be of such importance it may be of interest to our readers to read the letter below, which came from our good friend Prof. H. B. Hughes of the Iowa State College, Ames, Iowa, just about two years ago.

> *Mr. A. I. Root:*—We are sending you $40.00 worth of seed—not by freight, but enclosed herewith attached to an explanatory sheet and with our compliments. You will be interested in the attached statements regarding this seed, which I am send-



The new annual sweet clover plants April 27, 1920, at Bradentown, Fla.

ing to the different State experiment stations. Will you plant this seed this year?

FARM CROPS SECTION.
By H. D. Hughes.
Ames, Iowa, April 15, 1918.

The letter inclosed a packet containing perhaps 50 seeds. I had a big laugh when I received it, and then I divided the few seeds, and sent about half of them, with the letter, to Prof. C. E. Thorne of the Ohio Experiment Station. He replied at once that they had already received a similar packet of seed. What particularly impressed me was a printed statement (of recent date) in regard to the new legume, reading as below:

IOWA STATE COLLEGE
and
Iowa Agricultural Experiment Station.
Ames, Iowa.

An annual white sweet clover was discovered at the Iowa Experiment Station in March, 1916, in seedings made in the college greenhouses. In field trials it made a growth of 4½ feet in 3½ months, while medium red clover made a growth of 5 inches, and biennial white clover a growth of 14 inches.

Letters have come to the Iowa station from all parts of the civilized world, begging for just a few seeds. Unheard-of prices have been offered for it. *Time and again we have been asked to set our own price, and that it would be paid gladly; but the Iowa station has not sold a single seed.*

In the spring of 1918 100 seeds were sent to each of the State experiment stations, and 50 to each seed company in the United States. Small samples were also sent to farmers and seed-growers in different parts of the world who were especially interested.

The reports received by the Iowa station shows that in nearly all parts of the United States this clover has made the remarkable growth of from four to eight feet in from four to five months from seeding.

Please note in the above the sentence that I have taken the liberty of putting in italics. My good friend Prof. Hughes (and I take it for granted the whole State of Iowa is back of him) refused to sell the seed that made a promise of such value, no matter what price was offered; and in their proposal to send out a few seeds free of charge there was no restriction confining themselves to the one State of Iowa; but I take it that a small packet of the seed was to be given to each applicant in the whole wide world, "without money and without price." The great State of Iowa seems to have gotten hold of the wonderful text that I have chosen at the head of this article—"Do good and lend, hoping for nothing again." Of course I planted some of the seeds sent me two years ago by friend Hughes; and when they were in bloom I gave notice to all the readers of GLEANINGS that I would send a few seeds to anybody who would send a stamped and addressed envelope. See GLEANINGS for October, 1918, page 629. During the two years that have passed we have sent out over 1,000 packages, and answered questions in a great part of these letters with the view not only of helping the beekeepers but the cause of agriculture thruout the whole wide world.

I have already given an extract from what the *Ohio Farmer* has to say about the new legume, and below I submit a clipping from the *Rural New-Yorker* of Mar. 13:

ANNUAL SWEET CLOVER; NEW PLANT HIRED MAN
An Accidental Discovery Which Changes Farming.

The Iowa Agricultural College now presents a candidate for the position of plant hired man which seems to us most promising of any yet reported. It is an *annual white sweet clover.* This was not known to exist until March, 1916, when H. D. Hughes, who had charge of the farm crop work at the college, observed a number of very large sweet clover plants. They all seemed to come from one particular lot of seed. These plants seemed far superior to the others, and looked as if they were about ready to bloom less than three months from seeding. The college had secured some 500 different lots of sweet clover seed for trial, and they were planted in the greenhouse in January. At about March 1 plans were made to tear these plantings out to make room for other crops, when Mr. Hughes noticed these larger plants. When this seed was planted it was supposed to be the common biennial or two-year white variety, but when the difference was discovered these superior plants were left in the soil. By the middle of March they had grown to a height of from 3 to 4½ feet, and most of them were in full bloom. At the same age the common sweet clover was less than one foot high. All who have grown the common varieties know that practically one season must be given up while the plant gets ready to work!

..A POSSIBLE "SPORT."—It is not definitely known where this clover originated, but it probably first appeared in Alabama. The indications are that it first appeared as a "sport" or mutation on wild land. Mr. Hughes gives the following guess as to its origin:

"It is quite certain that the 'sport' did not occur in a cultivated field, for under these conditions the seed would have been lost. It evidently occurred on wild land several years, where it made its growth and produced its seed year after year without anyone becoming aware of the fact that it was making its complete growth in a single season. Considerable sweet clover seed is harvested in certain sections of Alabama by negroes, who either stripped the seed off the standing plants or cut the plants down and threshed the seed out by hand. Under these conditions the seed of the two clovers became mixed."

Its discovery in the Iowa greenhouse was one of those fortunate accidents which have had so much to do with changing industry. For we firmly believe that the use of this annual sweet clover is destined to upset many of our present ideas of farming and fertilizing.

THE FIRST PLANTING.—That first season in the greenhouse it was possible to obtain a number of seeds. There were 22 plants in this original lot, and they gave enough seed to grow a short row for each. This seed was planted about the middle of June (the same year in which the plants were discovered). A thin seeding of oats was made with them. At the same time other clovers were seeded for comparison. The oats were cut when the heads were in "milk" without injuring the clover. At this time the annual sweet clover plants were about six inches high. After that they grew rapidly. The 22 plants varied in height and maturity as they grew in the greenhouse, and this difference was shown in their seedlings. Some came into bloom 2½ months after seeding, while others required 3½ months at least. At 3½ months the best strains had reached a height of 4½ feet. During this same time the common or biennial white sweet clover had grown only 12 to 14 inches, while the yellow sweet clover stood eight to ten inches high. A further comparison was made with medium red clover. As many of our readers know, under ideal conditions of soil and weather red clover will sometimes make 12 or even 18 inches of growth the same season it is seeded—but that is unusual. In this Iowa experiment the red clover seeded at the same time as the annual sweet clover made from three to five inches of growth, while the sweet clover grew three to 4½ feet.

Mr. Hughes tells how this difference in growth was noted on the original plants grown in the greenhouse.

"When the plants were mature they were pulled, and the root growth found then large and vigorous, but entirely different from that of the biennial sweet clovers. The biennials have a large succulent taproot at the end of the first season's growth, much like that of a parsnip, and at the top of the root, about an inch below the surface of the ground, a crown with anywhere from five to fifty buds ready to burst forth at the first sign of spring. But the root of the new clover was entirely different. Altho large and vigorous, there was no life-giving succulence, and no crown nor buds to begin life anew the next spring. The plant had made its full growth, bloomed, ripened its seed, and died—tops, roots, and all, clearly establishing the fact that this clover was an *annual*."

The annual sweet clover has about the same analysis as clover or alfalfa. It has the same habit of taking nitrogen from the air, and in the season of seeding it makes four or five times as much growth as red clover and gets out of the way for the next season's crop.

TESTING THE NEW PLANT.—Having become satisfied that this annual sweet clover is a new plant and that it has the power to reproduce its peculiar characteristics, the Iowa Station proceeded to collect seed and fully test the clover. This seed was sent in small quantities all over this country, and from Denmark to Hawaii. It has given good results everywhere. It made its full growth in from three to four months, and grew from 3½ to seven feet high—depending on soil and conditions. A report from Hawaii shows that they grew two crops in the season—the second from seed produced by the first crop. The first averaged five feet in height, the second 4½—with fully seven weeks' bloom for the bees. In Mississippi seeds were sown in the fall to see if they would endure the southern winters. The plants came thru the winter, and by May 15 *were large enough to plow under for fertilizing*—thus indicating a new value for the plant. In fact, it would seem as if this clover is to serve as the unusual nitrogen hired man.

One of the most interesting tests made thus far with the annual white sweet clover was at the Iowa Agricultural Experiment Station in 1919, when the clover was sown with Iowa oats. The oats were drilled in at the rate of three bushels per acre, and biennial clover was seeded at the rate of 15 pounds per acre, with a small amount of seed of the annual white sweet clover scattered in also. An excellent stand of clover was secured. When the oats were in the milk stage they were cut with a mower for hay, clipping the clover plants off close to the ground. Following the removal of the oats the clover grew vigorously. The biennial white sweet clover, which made a very thick stand, grew to a height of about 18 inches, while the annual white sweet clover plants grew to a height of from three to 4¾ feet and came into bloom, but did not set seed. Similar reports regarding the growth of this clover when seeded in with small grain have come from different parts of the country.

PASTURE POSSIBILITIES.—In Kansas the clover was seeded in the spring on winter wheat. This wheat made a rank, heavy growth, yet after it was cut the sweet clover came on and made a growth of 3½ to 4½ feet—and matured seed. Let any man consider the amount of pasture for hogs or cattle this growth of clover would make, or how it would fit the land for corn or potatoes! Why cannot you do the same after any crop which will mature at least 10 weeks before frost? Someone might easily have made a fortune by holding this seed like a miser until a large quantity had been gathered, and then offering it at an extravagant price. That has been done many times with worthless "varieties" by using some well-advertised name. In the case of this new clover a full and free distribution will be made. The Department of Agriculture and several seed companies are at work developing strains of this annual clover, but the original discovery was made at the Iowa College, and full credit should be given Mr. H. D. Hughes.

We take pleasure in giving the following from *The National Stockman and Farmer* of April 3d:

A NEW DISCOVERY—AN ANNUAL SWEET CLOVER.

An annual white sweet clover which a few years ago was not known to be in existence was discovered at the Iowa Experiment Station, Ames, Ia., in March, 1916, by Professor H. D. Hughes, who is in charge of the Crop Investigation work at that Station. Since that time it has been tried out with wonderful results in all parts of the country, growing to a height of from four to eight feet in four months from seeding.

One of the most interesting reports was received from Mr. Henry Field, a prominent Iowa seedsman, who had the following to say regarding the annual white sweet clover:

"Most of the plants were higher than a man's head. Bore leaves very close to the ground. Were exceptionally well branched and fine stemmed, resembling in this regard the yellow biennial. First blooms 80 days from seeding. It is going to be a great crop for the beekeepers. In fact, it is going to be a boon to the whole country, especially to the renter. A quick-growing legume has been needed this long while. It grows from four to seven feet high in about four months. The hay crop may be obtained in three months; pasture almost in 30 days if used judiciously. It will make as much growth in four months as the biennial does in 15 months and seems to be in every way identical except in its habit to deliver the goods in such a short time. The college people ought to be complimented on the discovery of so valuable a legume."

Two years after its discovery the annual white sweet clover was being grown in practically every State in the Union and in many foreign countries. This is a record hard to equal as probably no other new plant ever received such wide distribution in such a short time after its introduction, and undoubtedly few plants have given such uniformly satisfactory results, considering the great variation in the conditions under which this clover has been grown.

The description of this clover may sound too wonderful to be true, but reports come from all parts of the world confirming these statements. The following report, received from a Kentucky farmer, shows what the annual white sweet clover will do in that State: "This is sure an annual white sweet clover and my opinion is that it will take the lead of the biennial white sweet clover as soon as there is enough of the seed to put on the market. It looks as tho it will be a great pasture and hay crop and great for honey production, as it will produce pasture, hay, and honey in such a short time after sown. The plants grew three to four feet in height and grew thru the extreme drouth of August when bluegrass and other pastures were barren and burnt up."

The sweet clover which perhaps has been grown most extensively in the past is the biennial white, altho the biennial yellow is also used to a large extent. This makes four different kinds of sweet clover—biennial yellow, biennial white, annual yellow, and the new annual which Professor Hughes discovered in 1916.

The advantage of the annual may be readily understood, as it can be planted and grown as a crop the same season. This would be of material advantage to the one-year renter or to the man who is short of hay, as it promises to be of great value as a hay crop and also for pasture. There is not much doubt but that it will take the place of the common clovers as soon as there is a sufficient amount of seed available for general farm use.

The Maryland Experiment Station was well pleased with this clover and made the following report:

"Planted about May 30. Grew to a height of 45 inches. Seeds were mature latter part of August. It seems to me that it will be possible for us to use this clover as a green manure crop to good advantage if we should plant the seed in the wheat fields in the spring and plow it under in August for green manure, and then plant the land to wheat. Crop looks very promising."

The Iowa Experiment Station has enough seed on hand to furnish a small amount to as many as 150,000 farmers, and they wish to supply every farmer who would like to try it. All that is necessary to secure this is to send a stamped, self-addressed envelope along with the request for seed.

Probably the best method for handling this seed will be to sow it in a row in the garden, where it can be given the best of care and observed to see how it is suited to conditions and where seed can be matured and harvested, as it ripens, for later use.

The following from a recent letter from Prof. Hughes comes in nicely here:

Dear Mr. Root:—I very much appreciate having your letter of the 20th. Evidently you must have been making good progress with the new clover, as I notice a statement in the reprint which you enclose to the effect that approximately 1,000 people had secured samples of seed from you.

You will be interested in knowing that we have had approximately 40,000 requests during the past four or five weeks for samples of this seed.

I am very much interested in your statement regarding the possible value of this crop for Florida conditions. We sent a few seeds to the Florida station in the spring of 1918, but I do not believe we ever had a report from them. The report from Mississippi is very interesting.

Very truly yours,
H. D. HUGHES,
Farm Crops Department.
Ames, Iowa, April 28, 1920.

Below are some valuable suggestions clipped from the printed matter sent with each little packet of seeds:

To indicate the possibilities of a small sample of seed such as we are sending you, let me tell you that one Iowa man harvested about 400 pounds of this seed in the fall of 1919, and all of this came from a small sample of seed which we supplied him in the spring of 1918, a sample only one-fourth as large as we are supplying you.

This seed has been scarified and has given a germination of 91 per cent. Before scarifying the germination was 34 per cent. It is necessary to scarify sweet clover seed in order to get a satisfactory germination. Nearly every seed company in the United States and many seed-growers and farmers are now using the Ames Hulling and Scarifying Machine, perfected and given to the world a few years ago by the Iowa Agricultural Experiment Station.

Sweet clover will not make a satisfactory growth unless the soil contains an abundance of lime and the proper sweet clover bacteria. If the bacteria are not present or if the soil is acid, it is not likely that these plants will make a growth of over one foot. With the presence of the bacteria and lime there is no reason why they should not make a growth of from 4 to 8 feet, depending upon the section of the country where grown. *Insure the presence of lime by working it into the surface soil where you plant this seed. Get inoculated soil from an alfalfa or a sweet clover field, or along the roadside where sweet clover has been growing vigorously and work it into the surface soil where these seeds are planted. We consider this of very great importance.*

H. D. HUGHES,
Chief of Farm Crops.
Iowa Agricultural Experiment Station.

The following is just at hand from our Ohio Agricultural Experiment Station:

We have grown the new annual sweet clover two seasons, and think it is likely to fill most admirably a heretofore vacant place among annual legumes. If you will come down in midsummer, we will have something to show you.

C. G. WILLIAMS.
Agronomist.
Wooster, O., May 7, 1920.

"DAILY BREAD."

For sometime back I have been paying the barber 60 cents for cutting my hair and trimming my whiskers, but a few days ago when I handed him a dollar, he gave me back only 20 cents. Next time I went to another barber, but the price was just the same. You all know about it. It is not only the barber, but all things seem to be still climbing in price, just the same, altho some great and good authority has just announced that we are "approaching" the climax, and things will soon go back, at least a little, to the old level.

On page 235, April issue, I mentioned that one of our grocers came down and offered me $5.00 a bushel for new potatoes. When it came *that way*, I didn't feel a bit hurt," that is, "not so you would notice it." Well, that was about the middle of February, and this is close to the middle of April, 60 days; and that precious little wind-power electric auto has carried one and often two loads of potatoes up town every day since. I have not even once been able to give the grocers as many potatoes as they wanted. Yesterday I saw Bermuda new potatoes quoted at $20.00 to $22.00 a barrel. As a barrel usually contains about 11 pecks, the latter price would be $2.00 a peck or $8.00 a bushel. In that article in April Gleanings I told you I received $25.00 for the potatoes dug from four rows 120 feet long. Well, that same long bed *now* contains a better stand of potatoes than those that brought the $25.00. How is that for Florida, in one single winter of just six months? Below is a picture of that bed of potatoes.

Four rows of potatoes, 120 feet long, the second crop grown in one winter, at Bradentown, Fla.

Why do the people of Manatee County permit me, alone, year after year, to grow all the winter potatoes? Well, they say the business is a "gamble." So it is, to some extent. Almost every winter frost catches me more or less, but here comes in my new method. By starting in a protected bed or a bed that can easily be protected, I save three and sometimes *four* weeks. They transplant so easily, the potatoes don't know it, and people who see them next day "don't know it." I have told you all about it, over and over again. Now, let us go back briefly to where I started. If almost everything, as well as daily bread, *has* advanced, and is still advancing, kind, patient "old Dame Nature" has not raised *her* price "one iota." If you talk about hiring help to "make garden," I admit that the cost has advanced, but that is a different matter. This is the point. Dear old Dame Nature pays old men like myself just as liberally for their work in the garden, as she ever did, and if the sunshine and showers cost any more than they used to cost, I haven't heard of it.

There is one thing *more,* that is the "same old price." The wind that blows over our heads, day and night, has not advanced. This same "cold North wind," that has made such havoc all over the great North, is now running that auto, and of late, lighting my study, warming it up when needed by a beautiful little electric radiator; and *still further,* cooking my meals, at least to a certain extent. I never ate any nicer Hamburg steak, than that cooked right on the table by a beautiful little electric "grill." With the *two* windmills, all the batteries are easily kept fully charged.

Later.—I am now back in my home in Medina, Ohio; and instead of finding potatoes worth $6.00 a bushel, which I thought an awful price down in Florida, I find the following announcement in the *Cleveland Plain Dealer* for May 1:

NEW POTATOES HIT 25-CENTS-LB. MARK

HASTINGS VARIETY WHOLESALE AT $30 A BARREL.

At 25 cents a pound, you will notice this would be $15.00 a bushel—not a *barrel,* mind you, but $15.00 for one bushel of new potatoes grown in Florida; and at that price per bushel they would probably retail at $4.00 a peck. "Did you ever!"

Well, now perhaps the great wide world will listen to me when I urge again that Irish potatoes, at least a few of them, should be started in almost every home, in a protected bed. Today is May 4; and instead of the fields being green with oats in this stiff clay region, there has been such a succession of rains that scarcely a field has been touched by the plow or anything else. Of course no one could plant potatoes just now, even if they *were* $4.00 a peck. Now see where my invention comes in. Start your potatoes in a bed which can be covered with sashes, and these same sashes that now protect from frost will keep off the rain when it is not wanted; and when the time comes that the ground can be worked out in the open, instead of planting a piece of potato you can plant a little hill of potatoes having big bushy roots and some green tops.

Classified Advertisements

Notices will be inserted in these classified columns for 30 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued while they are in good standing.)

L. S. Griggs, Gronemeier Bros., Hyde Bee Co., C. J. Baldridge, R. Kramske, Hofmann Apiaries, Charles D. Sherman, A. M. Applegate, L. L. Ferebee, Dr. E. P. Stiles, J. W. K. Shaw & Co., Oscar Mayeaux, Henry Field Seed Co., W. D. Achord, A. I. Root Co. of Iowa, Novelty Mfg. Co., Mead Cycle Co., J. J. Wilder, Jensen's Apiaries, I. F. Miller, Julius Gentz, Ward Lamkin, O. H. Townsend, Charles Kennard, W. B. Davis Co., Progress Nurseries, E. A. Harris, W. J. Forehand & Sons, Foster Honey & Merc. Co., Dr. J. H. Black, M. E. Eggers.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you.
The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Four tons choice clover honey, extra well ripened, packed in new 60-lb. tins, two in a case. Wish to sell in one lot.
Lee & Wallin, Brooksville, Ky.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey, in 60-lb. cans, at 22½c per lb. f. o. b. Brooksville. Sample 25c.
W. B. Wallin, Brooksville, Ky.

FOR SALE.—We have a very choice lot of white clover honey at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—We have a small part of our crop of white clover-basswood extracted honey left, packed in new 60-lb. cans, two to the case. Write for prices.
D. R. Townsend, Northstar, Mich.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey, but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many—one can, $15.50; case of two cans, $30.00. If a larger quantity is needed, state how much you will need and we will quote you a special low price. Kindly address, with remittance,
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Beeswax.
The L. D. Caulk Co., Milford, Dela.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—Bulk comb, section, and extracted honey. Write us what you have and your price.
J. E. Harris, Morristown, Tenn.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

We are paying 38c in cash and 40c in trade for bright yellow beeswax f. o. b. your station, in 100-pound lots or over.
Foster Honey & Merc. Co., Boulder, Colo.

WANTED.—BEESWAX. During June I will pay 40c per lb. cash for average yellow beeswax, delivered here. State quantity and quality and await reply before shipping.
E. S. Robinson, Mayville, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

HONEY WANTED.—50,000 lbs. bulk comb and extracted 1920 crop, produced and packed according to my instructions and specifications in containers furnished by me. Write today for instructions and contract blank.
W. A. Hunter, Terre Haute, Ind.

WANTED.—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address so we can identify it immediately upon arrival, and make prompt remittance.
The A. I. Root Co., Medina, Ohio.

FOR SALE

I manufacture Modern Cypress beehives. Write for prices.
J. Tom White, Dublin, Ga.

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. Healy, Mayaguez, Porto Rico.

Bruno mailing device for sale. Never used. First offer takes it.
J. O. Stewart, 742 Elmore Place, Brooklyn, N. Y.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

We can save you money on Cypress hives, frames, etc. Write for prices.
Sarasota Bee Co., Sarasota, Fla.

How many queens have you lost introducing? Try "The Safe Way," push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

FOR SALE. — Ten-frame standard dovetailed hives in lots of from one to fifty. Very cheap. Write for prices.
Wm. Craig, Aitkin, Minn.

ROOT'S BEE SUPPLIES. — For the Central Southwest Beekeeper. Beeswax wanted. Free catalog.
Stiles Bee Supply Co., Stillwater, Okla.

FOR SALE.—100 second-hand cases, each containing two 5-gallon cans. S. T. Fish & Co., 163 W. So. Water St., Chicago, Ills.

FOR SALE.—Comb foundation at prices lower than you had thought possible. Wax worked for cash or on shares. Satisfaction guaranteed.
E. S. Robinson, Mayville, N. Y.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition at 50c per case. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—150 cases (2 in case) second-hand 5-gallon honey cans at 50c per case f. o. b. Milwaukee. Laabs Brothers Co., 20th & Walnut Sts., Milwaukee, Wis.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

SECTIONS—SECTIONS.—A special lot of fifty thousand 4¼ x 1⅞ No. 1 bee-way sections, August Lotz make, while they last at $10.00 per 1,000 f. o. b. Reno, Nevada. H. F. Hagen, Reno, Nevada.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE. — One 8-frame Root's automatic power honey-extractor; one honey pump, one gasoline engine. I will sell all together, or any one separately. Write for price.
Elmer Hutchinson, Lake City, Mich.

FOR SALE.—200 comb honey supers, 4x5x1⅜, complete, painted, used once, in A-1 condition; 75 Danz. bodies of drawn comb, 400 empty frames, lot of sections, foundation, feeders, etc. No disease.
C. C. Brinton, 32 Luzerne Ave., Pittston, Pa.

FOR SALE. — Good second-hand double-deck comb-honey shipping cases for 4¼ x 4¼ x 1⅞ sections, 25c per case, f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; Gleanings and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

HONEY TANKS FOR SALE.—Heavy tinned iron tanks with water jacket. Have two faucet outlets suitable for bottling or storage purposes. 20-gallon capacity, $10.00; 100-gallon capacity, $50.00. With three-ring gas burners and sheet iron stand, $75.00; also one 50-gallon tinned iron tank with three syrup gate outlets, $15.00; also gas oven suitable for liquifying six 5-gallon tins, $25.00. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—100 four-frame nucleus hives in lots of 5 or more. The frames used just fit crosswise in any regular 10-frame deep super, same holding 13 nucleus frames. Just the thing for expert or beginner. All hives have good galvanized telescope covers, and are painted inside and out. All clean, in first-class condition and absolutely free of any disease. Price, empty, 75c each; with 3 frames of full drawn combs, $1.50 each, f. o. b. Marion. Write for particulars.
James W. Bain, Marion, Ohio.

WANTS AND EXCHANGE

WANTED.—Good extractor.
Emil Uyldert, New Brunswick, N. J.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Thin super foundation mill, also smooth roller mill, 10 x 2 inches.
Wilbert Harnack, McGregor, Iowa.

WANTED.—To exchange Saanen Nanny goat for queen bees, pound bees, and supplies.
S. G. Catchpole, Oil City, Pa.

WANTED.—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—1920 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

QUEENS ON APPROVAL.—Bees by package or colony. Birdie M. Hartle, Reynoldsville, Pa.

FOR SALE.—Hardy Italian queens; one, $1.00; 10, $8.00. W. G. Lauver, Middletown, Pa.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Bright Italian queens, $1.50 each; $14.00 per doz. Ready after April 15.
T. J. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Italian queens, mailed as soon as hatched. Safe arrival guaranteed. June 1, one, 75c; 10, $6.00. Evan Jones, Franklinville, N. J.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

SIMMONS.—Goldens and three bands, prize-winning strain. Also nucleus.
Allen Simmons, Claverack, N. Y.

FOR SALE.—Italian queens, three-banded and Goldens, untested, $1.25 each; 6, $6.50; 12, $13.00. Now ready. G. H. Merrill, Pickens, S. C.

FOR SALE.—Italian queens, three-banded, untested $1.50 each; 6, $7.50; 12, $14.00. Tested queens, $3.00 each. Robt B. Spicer, Wharton, N. J.

FOR SALE.—Golden queens. Will begin filling orders May 15 in rotation. Untested, $1.10; selected untested, $1.50 each. Safe arrival.
Hazel V. Bonkemeyer, R. D. 2, Randleman, N. C.

QUEENS.—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, $2.00; six, $9.00; twelve, $16.80. After June 1 one, $1.50; six, $8.00; twelve, $14.00. Select tested, $3.00 each. Write for prices per hundred. Descriptive circular free. Hardin S. Foster, Dept. G. Columbia, Tenn.

FOR SALE. — Pure Italian queens, untested, $1.50 each; $15.00 per dozen. Tested, $2.50 each. Satisfaction guaranteed.

D. P. Barrett, Ann Arbor ,R. D. No. 3, Mich.

FOR SALE. — My famous three-band Italian queens, one for $1.25; six for $7.00. From June 1 to November.

J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

FOR SALE. — Leather-colored Italian queens from Dr. Miller's breeder. Virgins, $1.00; tested, $1.50. July 1, 5, $6.00; 10, $11.00.

F. R. Davis, Stanfordville, Dutchess Co., N. Y.

Bees by the pound a specialty; 2,000 lbs. for May delivery, 1920; 200 Italian queens for sale with above bees. Write for prices.

A. O. Jones & H. Stevenson, Akers, La.

GOLDENS THAT ARE TRUE TO NAME. 1 select untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.

Garden City Apiaries, San Jose, Calif.

FOR SALE.—Best three-banded Italian queens ready June 10. Untested only, one, $1.50; 6, $8.00; 12, $15.00. Book orders now.

Ross B. Scott, Lagrange, R. D. No. 4, Ind.

FOR SALE.—QUEENS. Italian queens of excellent stock will be ready to mail June 1. Untested, $1.50 each; 6, $7.50; 12, $14.00.

J. D. Harrah, R. D. No. 1, Freewater, Oregon.

FOR SALE. — Leather-colored Italian queens, tested, until June 1, $2.50; after, $2.00. Untested $1.25; 12, $13.00. Root's goods at Root's prices.

A. W. Yates, 15 Chapman St., Hartford, Conn.

FOR SALE.—Golden and three-banded queens, untested, April, May, and June delivery, $1.25 each; $12.50 per doz. Satisfaction.

R. O. Cox, Greenville, R. D. No. 4, Ala.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.

W. W. Talley, Greenville, R. D. No. 4, Ala.

BEES BY THE POUND. — Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

FOR SALE. — Hardy Northern-bred Italian queens, untested, $2.00 each; 6, for $11.00; select tested, limited number, $3.00 each after June 1.

Dr. C. E. Sheldon, Coeur d'Alene, Idaho.

FOR SALE.—Pure Italian queens, packages and nuclei. One untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.

Golden Star Apiaries, San Jose, Calif.

FOR SALE.—Untested Golden Italian queens, $1.25 each; tested queens, $2.50 each. Satisfaction guaranteed.

J. F. Michael, Winchester, R. D. No. 1, Ind.

FOR SALE. — Earliest queen-rearing yard in Colorado. Young queens now ready. Tested Golden breeding queens a specialty. A. C. Stanley and E. C. Bird, 1421 Walnut St., Boulder, Colo.

PURE ITALIAN QUEENS.—Not the cheapest, but the best we can grow; bright yellow, with clean bill of health; sure to please; such as we use in our own yards. Untested, $1.25; $14.00 per dozen.

J. B. Notestein, Bradentown, Fla.

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15. $1.50 each. After June 15, $1.30 each; $12.50 for 10; $1.10 each when 25 or more are ordered. Allan Latham, Norwichtown, Conn.

FOR SALE.—3-banded Dr. Miller and Walker's queens, after June 10 (am booked full until then). $1.25 each, 6 for $7.00, 12 for $13.00. Selects, 25c each higher

Curd Walker, Jellico, R. D. No. 1, Box 18, Tenn.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.

C. W. Phelps & Son, Binghamton, N. Y.

Italian queens, the kind that are sure to please you. Untested, in April, $1.25 each; one untested, May 1 to July 1, $1.00; one tested, May 1 to July 1, $1.50. Discount on large orders. Safe arrival guaranteed. L. R. Dockery, Carrizo Springs, Texas.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, $2.00; six, $8.00; doz., $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—Three-band leather-colored Italian queens. Safe arrival guaranteed. No disease. Hustlers, none better. 1, $1.00; 12, $10. Write for circular and prices on quantities.

J. M. Cutts, R. D. No. 1, Montgomery, Ala.

FOR SALE.—Victor's Italian Queens. Prompt service, courteous treatment, and painstaking effort are my inducements for your patronage. Mated, $1.25 each, six, $7.00; twelve, $13.50, from June 1 to Oct. 1. Julius Victor, Martinsville, N. Y.

THE ITALIAN QUEENS OF WINDMERE are superior three-band stock. Untested, $1.50 each; six for $8.00; tested, $2.00 each; select tested, $2.50 each; virgins, $1.00. Nuclei for sale.

Prof. W. A. Matheny, Ohio University, Athens, O.

A. I. Root strain of resisting and honey-gathering leather-colored Italian queens that a trial will convince. Untested, $1.50 each; 25 or more, $1.40; tested, $2.50 each; 25 or more, $2.25; select tested, $3.00. A. J. Pinard, Morgan Hill, Calif.

FOR SALE.—Bees, good hybrid stock from outyards in 2-lb. packages, with a tested Italian queen, from home yard at $7.00 per package; with three-banded untested queens, $6.00. Two-frame nucleus, Italian bees, $5.00; 3-frame- $6.75.

C. H. Cobb, Belleville, Ark.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

DAY-OLD QUEENS at practical prices. Superior improved Italian stock. Mailed in safety introducing cages. Safe arrival guaranteed to any part of the U. S. and Canada. Send for circular. Prices, 1, 75c; 10, $6.00; 100, $60.00.

James McKee, Riverside, Calif.

BUSINESS-FIRST QUEENS.—Untested, $1.00 each; $11.00 per doz.; select untested, $1.50 each; $12.00 per doz.; tested, $2.00 each; select tested, $2.50 each; breeding queens, $5.00 and $10.00 each. Safe arrival guaranteed in the United States.

M. F. Perry, Bradentown, Fla.

FOR SALE.—We are now booking orders for two- and three-frame nuclei at $2.00 per frame that will average not less than 3,500 bees and brood to the frame. Queen, $1.00 extra. Stock, Italian and hybrid.

Sarasota Bee Co., Sarasota, Fla.

LARGE HARDY PROLIFIC QUEENS.—Three-band Italian only. Pure mating and safe arrival guaranteed. June 1st, 1 queen, $1.50; 6, $8.00; 12, $15.00. July 15, 1. $1.30; 6, $7.50; 12, $13.50; 100, $110.00. Address

Buckeye Bee Co., Lock Box 443, Massillon, Ohio.

ITALIAN QUEENS.—Three-banded, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, $1.25 each; 12 or more, $1.00 each. Send for circular.

J. H. Haughey, Berrien Springs, Mich.

We have enlarged our queen yard considerably. We can take care of orders better than ever, large or small. April 15 to June 1, untested queens, $1.25; tested, $2.50; untested, $115.00 per 100. After June 1, $1.00 each or $90.00 per 100. J. A. Jones & Son, Montgomery, R. D. No. 1, Box 11a, Ala.

FOR SALE.—By return mail, three-banded leather-colored Italian queens from the very best honey-gathering strain, $1.50 each or $15.00 per dozen; tested, $2.00 each. You can buy cheaper queens elsewhere, but you cannot get better queens anywhere. Delivery and satisfaction guaranteed. I have no more 2-lb. package bees for sale this season. Jasper Knight, Hayneville, Ala.

FOR SALE.—Italian queens. Prices for untested in June, $1.50 each; 6, $8.25; 12, $16.00; tested, $2.50 each. After July 1, untested, $1.25 each; 6, $7.00; 12, $13.50; tested, $2.00 each; virgins, 75c each. Mismated queens replaced if returned in 30 days. Dead queens replaced if returned by return mail. Untested, ready to ship June 1 to June 10.
R. B. Grout, Jamaica, Vt.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Highest Grade Three-banded Italian queens, ready June 1. Queen and drone mothers are selected from stock of proven worth in hardiness, gentleness, honey production and disease-resisting qualities. Untested, each, $1.25; 6, $6.50; 12, $12.00; 50, $47.50; 100, $90. Your correspondence will receive prompt attention and I guarantee satisfaction.
A. E. Crandall, Berlin, Conn.

ITALIAN QUEENS.—The Old Reliable three-banded Italians, the best all-around bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, $1.50; 6, $8.00; 12, $15.00. Tested, $2.25; 6, $12.00; 12, $22.00. Select tested, $3.00 each. Descriptive circular and price list free.
John G. Miller, 723 C St., Corpus Christi, Texas.

1920 prices on nuclei and queens. Miller strain. Queens, untested, $1.50 each; $15.00 per doz.; tested $2.00 each, $22.00 per doz. One-frame nucleus, $3.00; two-frame, $5.00; three-frame, $6.50, without queens, f. o. b. Macon, Miss. We have never had any bee or brood disease here. Will have no queens except for nuclei until June 1. Safe arrival and satisfaction guaranteed.
Geo. A. Hummer & Sons, Prairie Point, Miss.

TESTED QUEENS.—I make a practice of requeening all my colonies each year with young queens. I am going to offer the tested queens for sale. They are descended from the Moore strain of leather-colored Italians. Only one year old this coming summer, right in the prime of their lives, just old enough to thoroly test them. I will begin mailing the queens the last of June, and finish in July. I like to have enough orders in advance to take them all, as I can work to better advantage in requeening. I will receive and book orders now, and will fill in rotation when I begin mailing them. Price, $2.00 each; 12 for $22.00. A few choice breeding queens, some two years old for $5.00 each. Safe arrival and satisfaction guaranteed.
Elmer Hutchinson & Son, Lake City, Mich.

MISCELLANEOUS

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Guinea Pigs. Brood sows, $2.50. Young sows, $1.50. Males, $1.00. Pleasant Hill Caviery, 1629 E. Florida St., Springfield, Mo.

HELP WANTED

WANTED.—Man to work with bees on shares or wages and assist with farm work.
Irwin Bros., Currant, Nevada.

WANTED.—Helper in large and extensive bee business. Exceptional opportunity for advancement to the right one. M. E. Ballard, Roxbury, N. Y.

WANTED.—One experienced beeman and one helper. Must be young man, able-bodied, and with good character. Prefer one man that can handle auto truck. State salary and give references when answering. Ernest W. Fox, Fruitdale, So. Dak.

WANTED.—We can use an experienced man in extracted-honey production during the season of 1920. Applicant kindly state age, experience, and wages expected in first letter, and oblige.
E. D. Townsend & Sons, Northstar, Mich.

WANTED.—One experienced, man and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted. W. A. Latshaw Co., Clarion, Mich.

SITUATIONS WANTED

WANTED.—Beekeeper of 12 years' experience would like work in bee-yard in New Mexico, Arizona, or California, about June, July, or August 1.
Rollin N. Carl, Bristol, Vt.

QUEENS!

Quirin's Improved Superior Italian Queens. They are Northern Bred and Hardy. Over 20 Years a Breeder.

PRICES	Before July 1st 1	 6	 12	After July 1st 1	 6	 12
Select untested - -	$1.00	$5.00	$9.00	$.75	$4.00	$7.00
Tested - - - - -	1.50	8.00	15.00	1.00	5.00	9.00
Select tested - - -	2.00	10.00	18.00	1.50	8.00	15.00

BREEDERS $5.00 each. If wanted in a two-frame Nucleus, add $5.00. No bees sold except where a breeder is wanted in a nucleus.

Safe delivery guaranteed; all grades of queens now ready to mail in reasonable quantities.

Send for testimonials. Orders booked now

H. G. Quirin, the Queen-breeder
Bellevue, Ohio

BEES We furnish full colonies of Italian bees in double - walled hives, single-walled hives, shipping - boxes, and three-frame nucleus colonies.

I. J. STRINGHAM, GLEN COVE,
Nassau Co., N. Y.

BEE SUPPLIES IN DIXIE

Dependable Goods with prompt service. Save time and transportation costs.

L. W. Crovatt, Savannah, Ga.
Box 134.

Established 1885

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ALWAYS ON TOP

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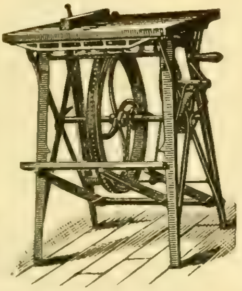
The Kind You Want and The Kind That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co's brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

BARNES' Hand and Foot Power Machinery



This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS

Mott's Northern-bred Italian Queens

Untested, $1.00 each; $12.00 per dozen. Select untested, $1.25 each; $15.00 per dozen.
Select guaranteed, pure mated, $1.50 each. Select tested, $2.50 each.
Plans "How to Introduce Queens, and Increase," 25c.

E. E. Mott, - - Glenwood, Mich.

QUEENS

Golden and three-band Italians. The kind that fill from two to four supers.
Untested, $2.00 each; $11.00 for 6; $45.00 for 25. No discount for 50 or 100 lots. Tested, $3.00 each; $16.00 for 6. Send orders for queens as early as possible.
Full colonies (bees and queen) $12.00 and $15.00 for 8- and 10-frame Root Co. hives.
S. C. R. I. Red eggs for hatching (280 egg trapnested strains) $2.50 per 15. $12.00 per 100.

MISS LULU GOODWIN, Mankato, Box 294, Minn.

QUEENS OF

MOORE'S STRAIN

OF ITALIANS

Produce Workers
That fill the super quick
With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens $1.50; 6, $8.00; 12, $15.00
Select untested..$2.00; 6, $10.00; 12, $19.00

Safe arrival and satisfaction guaranteed. Circular free.

J. P. MOORE, Queen Breeder
ROUTE 1 MORGAN, KY.

"QUEENS OF QUALITY"

3-band Italians only. Our breeding queen for this year comes from an outyard that averaged 110 lbs. last year, this particular colony storing 150 lbs. Queens of this strain are easily worth double what we are selling them for. Untested $1.50 each. Circular.

J. I. BANKS, DOWELLTOWN, TENN.

ROOT QUEENS

JUNE	
Untested	$2.50
Select Untested	3.00
JULY TO OCT. 1	
Untested	2.00
Select Untested	2.50

QUANTITY DISCOUNTS	
12 Queens	10 per cent discount
25 Queens	15 per cent discount
50 Queens	20 per cent discount
100 Queens	25 per cent discount

The A. I. Root Co., Medina, O., U. S. A.

Books and Bulletins

Bulletin No. 809, ''American Foul Brood,'' by G. F. White, is based upon observations made in the laboratory and in the experimental apiary, and is for the practical beekeeper as well as those who wish to make further study of the disease. The bulletin discusses the resistance of *Bacillus larvae* to various destructive agencies; the effect of the disease on the colony; and the transmission and diagnosis of the disease.

A general description of the symptoms and a detailed and well-illustrated description of the exact appearance of the dead larvæ and also of dead pupæ during the five stages of the disease, make the bulletin of value to all beekeepers.

This disease, as has been known for some time, is caused by *Bacillus larvae* and is a disease of the brood and not of the adult bees. Mr. White has proved that all worker, drone, and queen larvæ are susceptible to infection, but he has not been able to produce infection in other insects or in animals.

The colonies on which he experimented were fed spores of the *Bacillus*, the infection taking place along the alimentary tract. He found that the incubation period is approximately seven days and that in about one month, after a heavy inoculation, the colony becomes weakened, but is not destroyed by the disease for three months or longer. Mr. White says that it is very rarely that any even slightly affected colony ever recovers from the disease without treatment. Altho the brood is susceptible to infection at all seasons, the disease is more severe during the second half of the brood-rearing season than during the first half. Neither the climate nor the quality or quantity of stores appears to affect the disease much.

The spores of American foul brood in scales, he found, sometimes remain virulent for years. They are very resistant to most destructive agencies. The most resistant spores when in water withstand 212 degrees F. for 11 minutes, and when in honey withstand the same temperature for half an hour. Sunlight destroys dry spores in 28 to 41 hours, and spores in honey in from 4 to 6 weeks. When shielded from sunlight, spores in honey remain virulent for over a year. Spores resist fermentation and various drugs a long enough time to indicate that hope of treatment probably does not lie in this direction.

It is possible, Mr. White states, that the disease is sometimes transmitted thru the water supply, but the primary means of transmission is thru the stores, especially thru the robbing of diseased colonies and sometimes thru the placing of diseased combs in healthy colonies.

He does not consider flowers a medium for transmitting the disease, nor does he think there is much danger from tools, bee supplies, clothing, or hands. Even hives that have contained diseased colonies, he says, do not always transmit the disease, altho he advises flaming out the insides of the hives to make them safe.

It is our sincere hope that none of our readers will get the idea that American foul brood is not as easily transmitted as they had believed, for it is certain that the disease is readily transmitted by any medium that is contaminated with diseased honey. Elsewhere in the bulletin we find a statement that the likelihood of the disease being transmitted by combs from diseased colonies is probably frequently overestimated, and that such spreading of the disease probably depends considerably upon the amount of infection in the colony from which the comb was taken and also, to some extent, upon the presence or absence of brood in the colony to which the combs are given. Sufficient facts, it is asserted, are wanting to make definite statements in regard to the probability of infection in such cases. From our own experience as well as that of others, we believe that combs from diseased colonies often contain diseased honey, and that they are always a source of danger if any of the cells have ever contained diseased larvæ. If a beekeeper is really anxious to get rid of the disease, we do not think it will pay him to take chances in using combs from diseased colonies. Again, Mr. White says that colonies in which the disease has been produced thru artificial inoculation can be kept in the experimental yard without transmitting the disease to other colonies, and he believes this fact of importance in the control of the malady. In actual practice there are so many accidents that might happen to an infected colony which would allow other colonies access to the diseased honey, that it is safer to move all such colonies to a hospital yard for treatment.

Another new government bulletin, No. 1084 is ''Control of American Foul Brood,'' by E. F. Phillips. This short pamphlet, altho it gives no new developments, sums up the vital facts of importance to the practical beekeeper in the treatment of American foul brood. All beekeepers will find valuable advice in this bulletin, as ''Never feed honey purchased on the open market''; and ''In introducing purchased queens, transfer them to clean cages provided with candy known to be free from contamination, and destroy the old cage, candy, and accompanying workers.'' Also, when speaking of using extracting combs from diseased colonies he fully sizes up the situation from the standpoint of the producer when he says: ''The saving of such combs, however, is extremely dangerous, and such a policy is not to be advised. The beekeeper who takes all the precautions which it is possible to take, is the one who most quickly and cheaply eradicates American foul brood from his apiary.''

Apply to Division of Publications, U. S. Dept. of Agriculture, Washington, D. C., for the two bulletins referred to above.

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service
BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.
If you have not received 1920 catalog send name at once.

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FALCON LINE
BEST GOODS MADE

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C. C. Clemons Bee Supply Co
132 Grand Ave. Kansas City, Mo.

H. D. MURRY BAUGHN STONE
MURRY & STONE
ROUTE 1 MANCHESTER, TEXAS

will rear the well-known Murry Strain of 3-banded Italian Queens at the following

Prices	1	6	12
Untested	$1.50	$ 8.00	$14.50
Tested	2.50	12.00	22.00
Select tested..	3.00	16.50	30.00

Breeders, 5.00 to $10.00

A limited number of 2-frame nuclei with untested queens at $6.50 each, f. o. b. our shipping point. Safe arrival at your express office guaranteed. Some of this strain of bees stored 375 pounds of surplus honey per colony in 1919.

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles
cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

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Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 683

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Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

Queens--Rhode Island--Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, $1.25 each; 6 for $7.00. Circular on application. Queens delivered after June 1.

O. E. Tulip, Arlington, Rhode Island
56 Lawrence Street

HONEY-MAKING, MONEY-MAKING
ITALIAN QUEENS

Untested - - $1.50 each; 25 or more, $1.35
Tested - - - 2.50 each; 25 or more, 2.25
Select tested, each - - - - - - 3.00

Circular free. All letters answered promptly and cheerfully.

R. V. STEARNS, BRADY, TEX.

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies
Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck
The Comb-foundation Specialist
Augusta, Kansas
Established 1899

3-Banded Italian Queens

MAY THE FIRST TO JULY THE FIRST

Untested - - 1, $1.50 12, $13.00
Tested - - - 1, $2.50 12, $25,00

H. L. Murry -:- -:- Soso, Mississippi

NEWMAN'S ITALIAN QUEENS

Bred from the best. No disease. Satisfaction and safe arrival guaranteed. Untested, $1.25; 6, $7.00; 12, $13.50, Select Untested, $1.75: 6, $9.00; 12, $17.00. Circular free.

A. H. NEWMAN, - - MORGAN, KY.

BE FOREHANDED

Mr. Beekeeper and anticipate your needs for the coming season and order early. Root's goods in stock at factory prices. Send for 1920 catalog.

F. D. Manchester R. D. No. 2 Middlebury, Vt.

INDIANOLA APIARY

Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, $1,00; Tested, $1.50. Nucleus, $2 per frame, queen extra.

J.W.SHERMAN,VALDOSTA,GA.

Leininger's Strain ITALIANS

have a record of 35 years. Queens ready in June. Untested, each, $1.75; 6, $8 50. Tested, each, $2.50; 6, $14.00. Select breeders, $15.00 each. Every queen guaranteed.

Fred Leininger & Son, Delphos, O.

FOR SALE--THREE-BAND ITALIAN QUEENS

From best honey-gathering strain obtainable. (No disease.) Untested queens, $1.25 each; 6, $6.50; 12, $12. Select untested, $1.50 each; 6, $9; 12, $18. Tested, $2.50 each. Safe arrival and satisfaction guaranteed. Your orders filled promptly.

W. T. PERDUE & SONS Rt. 1, Fort Deposit, Ala.

NEW ENGLAND BEEKEEPERS

WE HAVE A LARGE STOCK OF ROOT'S SUPPLIES AND CAN GIVE YOU PROMPT SHIPMENT, SAVING YOU TIME AND TRANSPORTATION CHARGES. TRY US WITH YOUR ORDERS. CATALOG ON REQUEST.

F. COOMBS & SONS -:- BRATTLEBORO, VERMONT

AM NOW BOOKING ORDERS FOR

MICHIGAN-BRED QUEENS

THREE-BANDED ITALIANS ONLY

TESTED DISEASE-RESISTERS

PRICES	June 15 to July 15			July 15 to Oct. 1			
	1	6	12	1	6	12	100
Untested	$1.50	$8.00	$15.00	$1.30	$7.50	$13.50	$110.00
Select Untested	1.75	9.00	16.00	1.60	8.00	14.00	115.00
Select Tested any time after June 20				3.00	16.00	29.00	
Select Day-old Virgins after June 1				.60	3.50	6.50	50.00

All queens hatched in nursery cages, and any inferior ones are killed. All queens mated in two-frame or three-frame nuclei. No baby nuclei in yard. Books opened April 1. If you are going to need *good* queens this summer, now is the time to order them.

D. A. DAVIS 216 GREENWOOD BIRMINGHAM, MICH.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1920 catalog send for one at once.

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Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

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306 E. 5th St., Canton, O.

DO YOU READ

THE DOMESTIC BEEKEEPER?

(Successor to the Beekeepers' Review)

Now in its 33rd year; 32 pages; monthly; $1.00 a year

We haven't the room here to tell you all the reasons why we believe you would find a subscription to the Beekeeper a good investment; but we printed some extra copies for April and May, and if you will send us 10c (stamps or silver) for a copy of the May number we will mail it promptly and include, free, a copy of the April number. Or send us 50c for the magazine the balance of this year—7 months. We have some attractive book clubbing offers we would like to tell you about. Let's hear from you *today!*

THE DOMESTIC BEEKEEPER -:- -:- ALMONT, MICHIGAN

HONEY CANS AND PAILS

We carry a large stock for prompt shipment at reasonable prices. Send for special circular.

BEES AND QUEENS

We are supplying choice queens and package bees from a breeder in Santa Clara County. Send us your order.

NEW PRICES

New advanced prices were made on hives and frames April 1st. On extractors May 1st. Other prices are being revised. We are making the best prices possible at time of shipment.

THE A. I. ROOT COMPANY
OF CALIFORNIA

52-54 MAIN ST
SAN FRANCISCO, CALIF.

1824 EAST 15th ST.
LOS ANGELES, CALIF.

BEES PENNED UP UNDER BIG SNOW DRIFTS

Keepers Haven't Seen Them For Couple of Months.

MAY BE STARVED

Scarcity of Sugar Another Problem—No Reduction in Honey Price.

Bee keepers certainly have their troubles, hive owners indicated at a meeting of the National Association of Bee Keepers at the Statler this morn-

delegates to the con-
held each
Buffalo.

Bee Insurance

"**falcon**" bee supplies are an assurance of the right start towards success for your colonies this spring, just as they are insurance against the severest winter weather.

For over 40 years, the most exacting beekeepers, both in this and other countries, have been protected by the high quality of "**falcon**" supplies.

Behind every queen, hive, super or pound of foundation we sell, stands our guarantee of "absolute satisfaction or money back."

Send at once for our red catalog---order from it.

W. T. FALCONER MFG. COMPANY
Falconer, N. Y., U. S. A.

Where the Best Beehives Come From

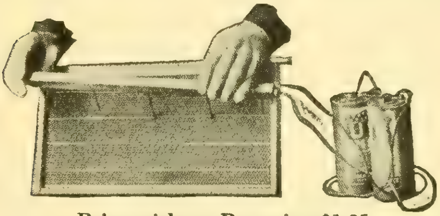
Prisoners in a Canyon.—Continued from Page 344.

tures were exaggerated. But they were not. They were insignificant compared with the reality. The wonder and grandeur of Mt. Massive and the surrounding mountains, majestic peak after peak as far as the eye can see, fills the beholder with awe and surprise.

AFTER an uneventful ride thru the Royal Gorge we pulled into Denver right on the minute, 48 hours late. And then we passengers discovered that our car contained quite the nicest traveling companions we had ever met, and we were all extremely sorry to part with each other. I suspect it was because we were prisoners together.

Here is something which I have discovered about the difference between the East and the West and my friends have had similar experiences. In the East the atmosphere has a quality of making a person transparent or invisible. At least on Eastern trains I have noticed that the majority of people look right thru me, if we have not been properly introduced, altho, strange to say, they seem to see me just enough to avoid collision. But in the West, altho, of course, the trains are filled largely with Eastern people, my fellow travelers not only see me but are delightfully friendly and informal. Can you explain it? I don't pretend to understand it, but I do love the West.

Electric Imbedder



Price without Batteries, $1.25

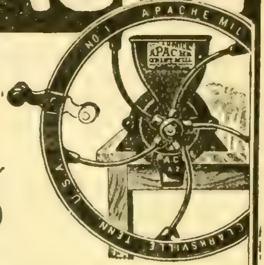
Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers Hamilton, Ills.

This Ball Bearing APACHE Grist Mill

PREPAID FOR ONLY

$8.00



FEED the hopper, turn the wheel, and enjoy making your own wholesome whole wheat or graham flour, old-fashioned corn meal, rye flour, chops and hominy, and *bring down living cost.* Best coffee and spice grinder. If you have poultry, grind your chicken feed, save feed money and get more eggs.
Apache grinding plates of special mixture iron made to give longest wear. Steel ball bearings make it only a boy's job to run it. Send money or check today. Satisfaction guaranteed. For the present we can make prompt delivery. So don't delay.

A. H. PATCH, Inc., Clarksville, Tenn.

The Apache Grist Mill is companion to the Black Hawk Corn Sheller, famous for 35 years for its "Can't Wear Out" Guarantee.

HYBRID POTATO SEED

Every seed will produce a new VARIETY of potato, some white and some red, some early and some late, no two alike, 100 or more seeds in each package. One package and three months' subscription to our Magazine, "Special Crops," regular price $1.00; special price three months and seeds, 25 cents

PUBLISHER OF SPECIAL CROPS, SKANEATELES, N. Y

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A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** THE BEST LIGHT CO.
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SURPLUS money which does not work means money wasted.

Our Banking by Mail Department enables the people of this entire country to avoid this waste.

Four per cent compound interest paid on savings, and our large resources and conservative management assure complete safety. Write for detailed information.

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A full line of supplies for the practical bee men at your command.
Additional information to beekeepers gladly supplied upon request.

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Western Honey Producers -:- Sioux City, Iowa

THAGARD'S ITALIAN QUEENS

Bred for Quality. My Three-band queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

	April 1st to July 1st. 1	6	12	July 1st to Oct. 1st. 1	6	12
Untested	$1.50	$7.50	$13.50	$1.25	$6.00	$12.00
Select Untested	1.75	9.00	16.00	1.50	8.00	13.00
Tested	2.50	13.00	24.00	2.00	12.00	20.00
Select Tested	5.00	22.00	41.50	3.50	20.00	36.00

I guarantee pure mating, safe arrival, and perfect satisfaction, circular free.

V. R. THAGARD -:- -:- GREENVILLE, ALABAMA

QUALITY QUEENS AT QUANTITY PRICES

BREED THREE-BAND ITALIANS ONLY

PRICES for 1920	Before July 1st 1	6	12	After July 1st 1	6	12
Untested	$1.75	$ 9.00	$16.00	$1.50	$8.00	$14.00
Select untested	2.00	10.00	18.00	1.75	9.00	16.00
Select tested	3.00 each			2.75 each		

Queens are reared from mothers whose colonies are gentle, hardy, and as honey gatherers are hustlers. Each and every queen reared by the latest and most approved methods, thus insuring queens that are capable of duplicating the excellent characteristics of their mothers. Satisfaction and safe arrival guaranteed in U. S. and Canada. Anticipate your needs and place your order now.

HERMAN McCONNELL -:- -:- -:- -:- ROBINSON, ILLINOIS

1920 QUEENS 1920

A colony of bees with a poor queen is worth the hive and fixtures. A colony of bees with a good queen has no limit in value, the honey flow alone being the determining factor. I am using my thirty-five years of beekeeping and queen-rearing experience to produce the best that can be produced, and sell at a figure that will sustain the high quality of my queens.

PRICES

One, $2; three, $5.50; six, $10; twelve, $19. All amounts over one dozen, $1.50 each. I sell only untested queens and make a specialty of this line. I select no queens, but try to have them all so good that there is little chance for selection. 1920 circular now ready. Season opens April first.

P. C. CHADWICK KERN COUNTY DELANO, CALIF.

WHEN YOU THINK OF BEEKEEPERS' SUPPLIES

THINK OF INDIANAPOLIS

We carry a complete line of Root's goods and we solicit your trade. Our slogan: Courteous treatment and prompt service. Catalog for the asking.

THE A. I. ROOT COMPANY (Indianapolis Branch) 873 MASS. AVE.

BEEKEEPERS' SUPPLIES

QUALITY AND SERVICE

Now is the time to order your season's supply of Bee Material so as to have them ready for the honey flow. For lack of hives and other goods, you cannot afford to let your bees fly away. *Bees are valuable.* We have every thing required for practical beekeeping. Our goods for Ideal of quality, quality of workmanship. Our 1920 catalog is now ready to send out; send for one. It is full of good stuff.

AUGUST LOTZ COMPANY -:- BOYD, WISCONSIN

DOLL SAYS

don't invite Disappointments by delay in ordering your Honey Containers. Make sure of having all the Cans and Bottles you will need, by ordering them NOW. I am splendidly prepared to fill all orders for Friction Top Cans of 3 lbs. to 10 lbs. capacity—5-gallon Square Cans—and ½-lb. to 3-lb. white flint glass Screw Top Honey Bottles. Standard-grade goods, at prices that will interest you.

AN EASY WAY TO SAVE MONEY

You can save 15 per cent to 20 per cent on the cost of your Honey Cans and Bottles this year, by ordering them from DOLL—and instructing us to ship direct from factory to you.

I am also ready to make prompt shipments of anything wanted in the way of White Pine Hives, supers, extractors, Foundation, and other Supplies—none better to be had in either Style, Quality or Construction.

BE ready when the Honey begins to flow, by GETTING ready NOW.

Be sure to get my price quotations before ordering this year's Supplies.

P. J. DOLL BEE SUPPLY CO.

NICOLLET ISLAND MINNEAPOLIS, MINN.

HERE THEY ARE, MR. BEEKEEPER, AT NEWARK

Wayne County, New York, ready to answer your call, the best of everything !!

Just Read This List

Lewis Beeware, Sections, Shipping Cases, Frames, Hives, Hershiser Wax Press, and other supplies.

Dadant's Unexcelled Foundation, all standard weights and sizes. Also the Electric Wire Imbedder.

Bingham Uncapping Knives, including steam-heated with oil stoves and generators.

Bingham Smokers, all sizes, with genuine leather bellows.

Root's Extractors, all sizes of hand and power Machines.

Bee Books written by all leading authors in beedom.

All Sizes of Friction-top Pails and also 60-pound Cans, new and second-hand. Also Cement-coated Nails for nailing beehives and supplies.

All-sized Spools of Tinned Wire, Bee Brushes, Feeders, Queen-rearing Cages, Bee Gloves, Capping Melters, and all practical supplies you will need.

A Market for your Honey or Wax, and a plant to render your Old Combs and Cappings.

Over 1,000 Beekeepers took advantage of this Service Station at Newark in 1919, for the first time. Now *all together* for a greater 1920.

New Catalog Free, and Our Discounts Will Save You Money. Address

The Deroy Taylor Co., -:- Newark, Wayne Co., New York

SELL YOUR CROP OF HONEY

TO

HOFFMAN & HAUCK, INC.

WOODHAVEN, N. Y.

NO LOT TOO LARGE OR TOO SMALL FOR US TO HANDLE

Mail Sample of Extracted, State Quantity and How Packed and We Will Make You Our Best Offer

CONTAINERS FOR YOUR CROP

All Sizes, Glass or Tin

2½-lb. Pails, per case of 24........	$1.80 each	Crates of 100........	$7.00
5 -lb. Pails, per case of 12........	1.65 each	Crates of 100........	10.70
10 -lb. Pails, per case of 6........	1.35 each	Crates of 100........	17.00
White Flint Glass Quart Jars (3 lbs. honey) with gold lacquered screw caps, per case of 12........			1.10
5-Gallon Tins, used, good condition, 2 tins per case........			.50

HOFFMAN & HAUCK, Inc. -:- -:- WOODHAVEN, N. Y.

June Time Is Swarming Time

and you have just got to have those supplies.

You will want us to rush them through and we will do the best we can for you.

If you haven't our catalog write us at once and we will mail you one.

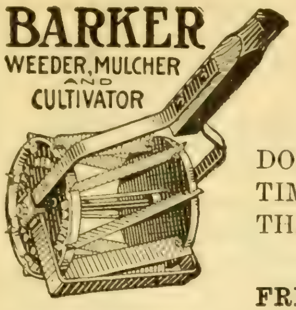
Are You Going to Syracuse for Supplies?

Veils
Smokers
Tools
Hives
Supers
Sections
Foundation
Extractors

We are in the market for beeswax. Write us for prices. Cash or trade.

We are ready to supply you with shipping cases, pails and jars. Write us for quotations.

F. A. Salisbury, 1631 W. Genesee St., Syracuse, N. Y.



Weeds and Mulches

In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER MANUFACTURING CO.
Dept. 10 David City, Nebraska

BARKER
MFG. CO.
Dept. 10
DAVID CITY, NEB.

Gentlemen. — Send me postpaid your free book and Factory-to-User Offer.

Name ____________________

State ________ Town ________ R. R. No. ________ Box ________

QUEENS

FROM SELECT BREEDING

Twenty Years of Experimenting. We have nothing but the very best.

3-Band Only

Price Cash With Order
Before July 1st

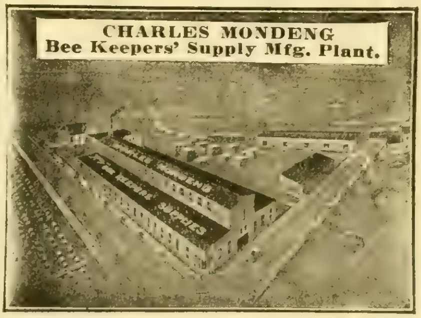
Untested	$1.50
Selected	2.25
Tested	3.00
Selected	3.50

Orders filled in rotation. Write for prices in large quantities.

Did you get what you were looking for when you bought your last year's Queens? If not, try one that will please you. My queens are reared on a new system, large and prolific, surpassed by none but superior to many.

F. M. RUSSELL
ROXBURY, OHIO R. F. D. No. 2

BEE SUPPLIES



The largest and oldest Bee Supply manufacturer in Minnesota can offer you **bee ware** that will keep that "satisfied smile" on your face. Excellent quotations given on frames, spacing or unspacing. Send for my 1920 Catalog and Price List. **Think** it over and in thinking **be wise** and save money by placing your orders **before** the rush is on. *Will Take Beeswax in Trade at Highest Market Prices.*

CHARLES MONDENG
146 Newton Ave., N. Minneapolis, Minn.

QUEENS Package Bees *QUEENS*

Did you read Prof. H. F. Wilson's write-up in the March issue of Gleanings, in regard to the packagés of bees he received from me last year? Notice he said some of those

PACKAGES RECEIVED IN MAY GAVE 150 LBS. OF HONEY

That speaks for the quality of our *queens.* The 2-pound packages with Queens shipped to Mr. David Running (then President of the National Beekeepers' Association) in 1917, three years ago, gave him 140 pounds that season. Have booked all I can guarantee shipping on time for April, but send for *Free Circular* for later shipping which states our guarantee, also gives prices on bees by parcel post, Nuclei, etc.

THREE-BANDED AND GOLDEN QUEENS.

Have secured the best queen men obtainable and we are prepared to turn out 6,000 queens per month. They do nothing but rear the best of *queens*; careful inspection before shipping. Have an entirely separate crew for shipping bees, etc. Twenty years a beekeeper.

Prices f. o. b. Here, by Express.

1-lb. pkg. bees,	$2.40; 25 or more...	$2.16
2-lb. pkg. bees,	4.25; 25 or more...	3.83
3-lb. pkg. bees,	6.25; 25 or more...	5.62

Queens.

Untested, $1.50 each; 25 or more....	$1.35
Tested, $2.50 each; 25 or more......	2.25
Select tested, each..................	3.00

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALALLEN, TEXAS

E. B. AULT, Prop.

QUEENS

OF QUALITY

FARMER'S QUEENS SPEAK FOR THEMSELVES.

Mr. Beekeeper, why not get a good queen while you are buying? Farmer's queens produce workers that fill the supers quick with honey that is most delicious to eat. They are bred for honey production strictly. Shipping season is here; now is your time to head your colonies with a good queen; one that will keep the hive chock-full of bees at all times, makes the biggest yields of honey, sting less, and look the prettiest. Our strain of Italians will go a long distance after nectar; in a high degree they are very resistant to disease, gentle and beautiful.

PRICES FROM APRIL TO JULY:

	1	6	12	100
Untested	$1.50	$7.50	$13.50	$1.00 each
Select untested	1.75	9.00	16.50	1.25 each
Tested	2.50	13.00	24.50	2.00 each
Select Tested	4.00	22.00	41.50	3.35 each

Limited number of 1-frame Nuclei for sale from the 20th of June on, with young, vigorous queen on good combs full of brood and plenty of bees, for $5.25 each. Guaranteed free from disease; never been any disease in neighborhood; shipment made next day after order is received; we guarantee everything we sell; you take no risk when you deal with us; safe arrival and satisfaction is our motto; customer is the judge. Reference: Bank of Ramer, Ramer, Ala.

The Farmer Apiaries . . . Ramer, Alabama

"Where the Good Queens come from"

A RED LETTER DAY IN CONCRETE TOWN
CONCRETE
MAIN STREET
OK
TOM
STOP
GO
DOC
OK

That Sign for Your Apiary

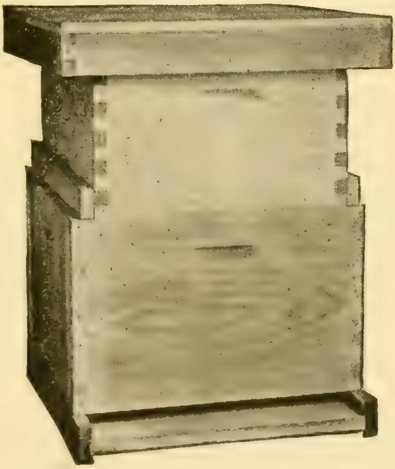
SHOULD BE MADE
THIS SPRING!

We will mail you on application a small folder on how to make your own signs by using our all-weather-proof burned clay letters. They can be used on buildings, walks, lawns or roadside.

Write for a "Red Letter Day in Concrete Town"

UNITILE
REGISTERED TRADE MARK

The Unitile Co., Columbus, Ohio
Dept. B



Modified Dadant Hive

Your present brood equipment can be put above the Modified Dadant hive used as full depth supers.

Features are: Deep frames, large one-story brood nest, frame space ventilation, excellence in wintering, swarming easily controlled.

Glance at this illustration to compare this hive with "Standard" Langstroth hive.

You can get 40 per cent greater brood-comb area than in the "Standard" ten-frame Langstroth.

Modified Dadant Hive Features.

1. Eleven frames, Langstroth length, Quinby depth.

2. Frames spaced 1½ inches for swarm control.

3. Extracting frames 6¼ inches deep.

4. Dovetailed body, regular reversible bottom and metal roof cover with inner cover.

5. Langstroth "Standard" equipment easily used with this hive.

For free booklet write any distributor of Lewis "Beeware," or to

G. B. Lewis Company - - - - - - - Watertown, Wisconsin
Dadant & Sons - - - - - - - - - - - - - Hamilton, Illinois

ITALIAN BEES AND QUEENS

We are prepared to give better service in every respect than we have ever given in Bees and Queens and supplies

UNTESTED QUEENS

To June 15th		After June 15th	
1	$1.50	1	$1.25
12 or more	1.25	12 or more	1.00

TESTED QUEENS

To June 15th	$3.00	After June 15th	$2.00

BEES

1-pound packages	$3.00	2-pound packages	$5.50

We will furnish one comb filled full of brood with one pound of bees for $5.50, no queen. You are almost sure that these will reach you in perfect shape. You get a 50c comb; they will build up much quicker than a 2-pound package. There is no danger of their swarming out.

NUCLEI

1-frame	$4.00	2-frame	$7.00	3-frame	$9.50

No queens included at above prices.
Nuclei are on good combs, full of brood with plenty of bees.

FULL COLONIES

We can furnish, and can ship on date specified, full colonies of bees in new hives, good comb, and good strong colonies with **Tested Queens**:

8-frame	$18.00	10-frame	$20.00

DR. MILLER'S QUEENS

Let's make this a Miller queen year. Dr. Miller has furnished us breeders from his apiaries, and we are the only ones that he furnishes breeders to. In these queens you get the fruits of the foremost beekeeper of the world. We pay Dr. Miller a Royalty on all queens sold.

To June 15th		After June 15th	
1	$2.00	1	$1.50
12 or more, each	1.60	12 or more, each	1.25

We carry a full line of Root's supplies, including the new Root-Weed foundation, Prompt Service.

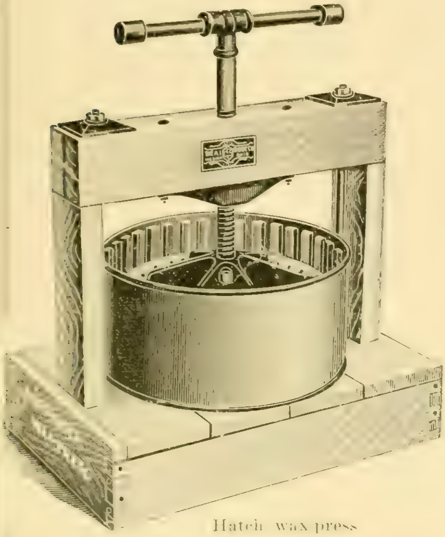
THE STOVER APIARIES

Successors to
THE PENN COMPANY
Penn, Miss.

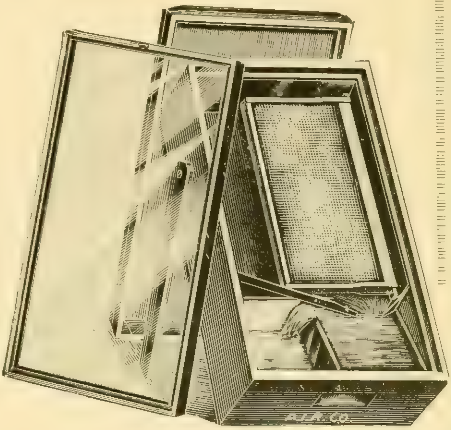
MAYHEW, MISS.

SAVE YOUR BEESWAX

Beeswax is bringing 40 cents and over on the market today, and you cannot afford to overlook this profitable by-product. By the use of one of the machines listed below every ounce of the wax you have been wasting may be saved and turned into money. If you have had the misfortune of losing your bees the past winter, and there are some of the old combs you do not wish to use again, they should be run thru a wax-extractor or press.



Hatch wax-press



Solar wax-extractor

	Wt.	Price
A472809—Hatch wax-press, single	70 lbs.	$15.00
A472806—Hatch wax-press, double	150 lbs.	25.00
A472807—Solar wax-extractor	30 lbs.	8.00
A472808—Boardman solar wax-extractor	110 lbs.	20.00

BEESWAX WANTED.

We are paying today for pure average beeswax delivered here 40c in cash or 42c in exchange for any of our bee supplies. Since we use enormous quantities of beeswax each year in the manufacture of comb foundation, we are always in the market for a good grade of wax regardless of quantity.

Ship your wax in double gunny or grain sacks, that is, a double thickness of sack. Mark your name on the inside and the outside of package.

THE A. I. ROOT CO., MEDINA, OHIO

New York - 139-141 Franklin Street
Philadelphia . - - - 8-10 Vine Street
Chicago - 224-230 West Huron Street
St. Paul - - - - 290 East 6th Street
Norfolk - - - 10 Commerce Street
Indianapolis - 873 Massachusetts Ave.

THE BEGINNING OF
DADANT'S FOUNDATION

It was in 1878, Charles Dadant, then 61 years old, and his son, C. P. Dadant, 27 years old, obtained one of the first foundation mills made. And it was then that Dadant's Foundation had its beginning.

They had some 300 colonies of bees in 4 apiaries and were desirous of manufacturing foundation that would satisfy their bees as well as themselves.

Father and son did the work themselves, in an old log house, or if the weather permitted, in the shade of a small oak sapling just north of the house.

There were other beekeepers just as anxious as they to get good comb-foundation and the first year, besides supplying their own needs the Dadants sold 500 pounds. Thus for the first time Dadant's Foundation was placed on the market.

The little oak sapling under which Dadant's Foundation was first made is now 3 feet thru. The little flat top room at the right was the first Dadant Foundation factory.

The little oak sapling grew as did their foundation business. The second year they sold 2,000 pounds of Dadant's Foundation and had to hire some help. All of the wax rendering was done by the elder Dadant who took great pains to do a neat job, and retain in the beeswax the odor of the hive, of the bees, of the honey.

The shade of the little oak sapling no longer sufficed, their first wax-melting room was soon outgrown, for Dadant's Foundation was being built on a firm basis, like the oak, and was to see a corresponding growth.

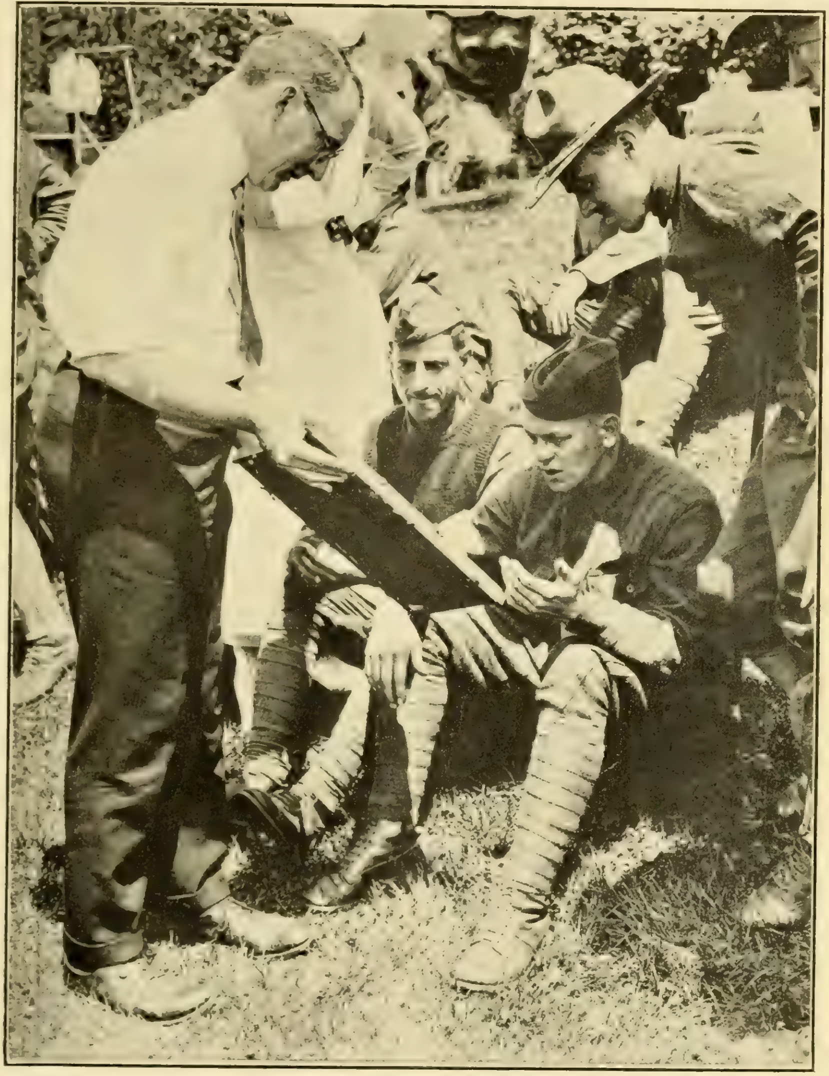
Dadant's Foundation (every inch, every pound, every ton, equal to any sample we have ever sent out). Specify it to your Dealer. If he hasn't it write us.

DADANT & SONS, HAMILTON, ILL.

CATALOG AND PRICES OF BEE SUPPLIES, BEESWAX, WAX WORKING INTO COMB FOUNDATION AND COMB RENDERING FOR THE ASKING.

LIBRARY of the
Massachusetts
Agricultural
College
JUL 6 - 1920

Gleanings in Bee Culture



Wounded Veterans of the World's War Studying Beekeeping at the U. S. Government's Apiary at Washington, D. C. Dr. Phillips is Instructing.

VOL. XLVIII July, 1920 NUMBER 7

WAREHOUSE JUST BEING COMPLETED TO

STORE YOUR HONEY

Let us store or sell it for you.

-:-

Our Factory Has Been Enlarged to Insure More Prompt and Efficient Service.

-:-

Full Line of

SUPPLIES & FOUNDATION

all the time.

-:-

Always in the market for

WAX AND HONEY

Send in samples.

MILLER BOX MFG. CO.
201 NORTH AVENUE 18
LOS ANGELES, CALIFORNIA

"Griggs Saves You Freight"

TOLEDO

Now for the 1920 Honey Crop

We will buy it, both Comb and Extracted

We want especially White Orange, White Sage, White Clover, Basswood, Raspberry

Write us what you have, sending samples and prices asked in first letter

Second-hand 60-lb. Cans

These cans used only once, packed in good cases; 10 cases, 70c; 50 to 100 cases, 65c; 100 to 500, 60c

Beeswax Wanted

GRIGGS BROTHERS CO.
Dept. No. 25 Toledo, Ohio
"Griggs Saves You Freight"

BEEKEEPERS' SUPPLIES

QUALITY AND SERVICE

The honey flow is now on. Honey means Dollars to you; don't lose a pound of it by being short of Supplies. We carry a full line of Bee Supplies ready for prompt shipment to you, Hives, Frames, Supers, SECTIONS, Foundation, Extractors, Smokers, Comb Honey Shipping Cases, Tin Honey Cans and Pails. Our goods are ideal in quality and Workmanship. Learn more about our goods by sending for our catalog.

AUGUST LOTZ COMPANY -:- BOYD, WISCONSIN

HONEY CANS AND PAILS

A carload of friction tops just arriving in Los Angeles from Baltimore via Panama. Several carloads of 60-lb. cans in cases in stock at both offices for immediate delivery. Send us your orders.

IMPROVED QUEENS

Plan to requeen with Root improved stock, reared in Santa Clara County. Get our prices, remembering when you do that choice improved breeds are not sold on the same price basis as common stock.

GET NEW PRICES ON SUPPLIES.

THE A. I. ROOT COMPANY
OF CALIFORNIA

52-54 MAIN ST
SAN FRANCISCO, CALIF.

1824 EAST 15th ST.
LOS ANGELES, CALIF.

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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

Editorial Staff

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Editor

A. I. ROOT
Editor Home Dept.

IONA FOWLS
Assistant Editor

H. G. ROWE
Managing Editor

Order Your Bee Supplies Now

25 per cent Discount

on Shipping Cases --- as long as our stock lasts---Flat cases---2-inch glass ---24 sections each --- 25 to the crate

	CATALOG PRICES		CUT PRICES	
	100 lots	25 lots	100 lots	25 lots
4¼ x 1⅞	$50.00	$13.00	$37.50	$10.75
4¼ x 1½	48.00	12.50	36.00	9.38
4 x 5	48.00	12.50	36.00	9.38
Lewis Section Squeezers. .	$4.80 each		$3.60 each	
Frame Wedge Drivers	1.25 each		.94 each	

We are overstocked on the above supplies and offer them at 25% reduction while they last. Send your order AT ONCE.

They are All LEWIS BEEWARE

You had better order a "MUTH IDEAL BEE VEIL" than be sorry. . . $1.60 each, postpaid.

Best Prices Paid for Honey

Send us samples of your honey and we will quote you a price equal to or better than that of any other concern. We buy and sell both comb and extracted honey. Cash remitted in full the same day shipment is received.

Beeswax Rendered from Old Combs

We pay you the highest market price for rendered wax., less 5 cts. per pound rendering charge. Our special hydraulic steam wax press gets the very last drop of wax from the old combs and cappings, assuring you maximum profit on them. Write for full particulars

THE FRED W. MUTH CO.
"THE BUSY BEE MEN"
CINCINNATI, O

HONEY CANS

Several cars just unloaded at our Ogden, Utah, and Idaho Falls, Idaho, warehouses ; more coming. We have anticipated the heavy demand and can fill your orders promptly. Avoid congested supers and loss of honey by ordering early.

SUPERIOR FOUNDATION

We are keeping pace with the enormous demand. For real quality specify "SUPERIOR" foundation. If your dealer cannot supply you write us for special prices.

BEESWAX

We are still paying top prices. "Everything in Bee Supplies."

Superior Honey Company -:- Ogden, Utah

(MANUFACTURERS OF WEED PROCESS FOUNDATION)

BEE SUPPLIES BEE SUPPLIES

SERVICE & QUALITY

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog—better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & COMPANY

2146 CENTRAL AVE. CINCINNATI, OHIO

HONEY MARKETS

The honey market is not stronger than last month, and large buyers report offerings at somewhat lower figures than a month ago. The Bureau of Markets' report, date of June 15, printed below, seems as a whole to confirm the buyers' statement, altho honey retains a strong market position. In the press there is considerable talk of Government action to reduce sugar prices. An embargo on all sugar export from the United States is one of the announced plans of the Department of Justice to relieve the nation-wide sugar shortage, which has lent largely to high prices for honey. This possibility of Government action to curb sugar prices has doubtless had some reaction on the honey market.

U. S. Government Market Reports.

TELEGRAPH REPORTS FROM IMPORTANT MARKETS.

(In many markets the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding 2 weeks. Quotations are for June 14, unless otherwise stated.)

BOSTON.—No arrivals since last report. Demand and movement limited, market firm. Sales to jobbers, per lb., extracted; Californias, sage, few sales 22-24c. Comb, no sales reported.

CHICAGO.—Supplies moderate, less than carload receipts of Australian, Cuban, Hawaiian; domestic receipts very light. Demand and movement moderate, market dull. Sales to jobbers, per lb., extracted, Oklahomas, Colorados, Californias, white 20-22c, light amber 19-20c, imported dark amber 15c. Comb, no sales reported. Beeswax, receipts increasing, much foreign wax being offered. Demand and movement slower, market weaker. Missouris, Oklahomas, Colorados, light 43-45c, dark 40-41c.

CINCINNATI. (June 15)—1 car Nebraska, I car Wyoming arrived. Demand good, movement light, market steady. Sales to jobbers, per lb., extracted, Western, white 20-21c. Beeswax, demand and movement moderate, market weaker. Average yellow 42-44c.

CLEVELAND.—Supplies very light, demand good, movement limited. Sales to jobbers, per lb., extracted, Western, 60-lb. cans light amber 22-23c, white clover 25-26c.

KANSAS CITY.—Supplies moderate, demand and movement moderate, market steady. Sales to jobbers, comb, 24-section cases Western, light, No. 1, $7.00-7.50. Extracted Western, white sage 24c, light amber 15-17c per lb. Beeswax, mostly 55c per lb.

MINNEAPOLIS.—Demand and movement light, market firm. Sales direct to retailers, comb, supplies cleaning up, too few sales to establish market. Extracted, supplies light. Western, 60-lb cans light amber 21-23c per lb.

NEW YORK.—Approximately 25,000 lbs. Georgia arrived since last report. Supplies light, demand and movement limited, market steady. Sales to jobbers and large wholesalers, extracted, domestic, per lb., Californias, light amber alfalfa 19-21c, mostly 20c; white orange blossom 21-23c, mostly 21½-22c; white amber sage 21-22c. West Indies, refined, $1.70-$2.00, mostly $1.85-1.90 per gal. Comb, supplies very light. Californias, 24-section cases mostly $6.50. Beeswax, no domestic arrivals reported, demand and movement limited, market steady. Sales to jobbers and large wholesalers, per lb., South American and West Indian, light 40-42½c, mostly 40c, dark 34-37c. African, crude, light 32-33c, dark 30-31c.

PHILADELPHIA. (June 15).—Since last report, approximately 800 gallons Porto Rico, 3,000 lbs. Florida arrived. Demand and movement light, market strong. Sales to jobbers, Western, light 19¾c per lb. Sales direct to retailers, Porto Rican, light amber $2.29 per gallon; Floridas, extra light 24c per lb.

ST. LOUIS. (June 15).—No arrivals. Supplies light, demand and movement slow, market steady. Sales to jobbers, old stock, extracted, in cans, Southern, light amber 16-17c per lb.; dark 15-16c. Comb, no sales. Beeswax, 35-36c per lb.

ST. PAUL.—Supplies very light, demand and movement slow, market dull. Too few sales to establish market.

LOS ANGELES, CALIF.—Unreported.

George Livingston
Chief of Bureau of Markets.

Special Foreign Quotations.

LIVERPOOL.—Since our last report there has been a little more movement in this article, which was only to be expected seeing the scarcity of sugar and the advance of it in price. Still, we cannot say that honey has in any way responded as one would have expected it to have done, for we can only report a small advance on the prices last quoted. It would appear that as long as people can obtain sugar at any price they are so conservative that they will not increase their use of honey.

125 packages sold in London out of 826 packages offered, and in Liverpool about 1100 packages were disposed of.

There has been no Californian quality offering. The value of extracted honey in American currency we reckon to be 14 to 15 cents per lb.

BEESWAX. The market has remained very quiet indeed. The value in American currency for good quality we make to be about 38 cents per lb.

Taylor & Co.
Liverpool, England, June 4, 1920.

CUBA.—I quote honey today at $1.40 to $1.50 per gallon; yellow wax, $37.00 per cwt.

Adolfo Marzol.
Matanzas, Cuba, June 7, 1920.

Opinions of Producers.

Early in June we sent to actual honey-producers in the southern part of the country the following questions:

1. What is the source or sources of your first surplus honey flow?
2. Has this first crop now been harvested?
3. How does the crop compare with the normal crop?
4. What proportion of the entire season's crop is now harvested?

Answers, as condensed by the Editor, are as follows::

LOUISIANA. — Better than normal crop from willow, tupelo, and white clover now harvested; white clover still blooming; one-third of season's crop harvested.—E. C. Davis.

GEORGIA.—Two-thirds of normal crop from poplar, gallberry, blackberries, black gum, titi, and black tupelo now nearly harvested; about one-half of season's crop now secured, with bay, cotton, peas, velvet beans, and Mexican clover coming in late summer.—F. M. Baldwin.

GEORGIA.—One-third of normal crop mainly from gallberry, mixed with some tupelo, harvested in my 525 colonies in the counties of Miller and Early; two-thirds of my season's crop harvested. —N. L. Stapleton.

GEORGIA.—Not over one-half (nearer one-third) normal crop from titi, black gum, tupelo gum, poplar, and gallberry harvested; nine-tenths of season's crop harvested.—J. J. Wilder.

FLORIDA.—Crop much below normal from citrus bloom harvested; about 20 per cent of season's crop harvested.—Harry Hewitt.

LOUISIANA.—Three-fourths of normal crop from willow, thistle, blackberry, locust, and clover, but not sufficient to give a surplus. Practically none of season's crop from surplus sources harvested. Principal honey flowers in the fall from goldenrod, smartweed, and a little Mexican vine that grows in low damp places.—G. O. Pharr.

LOUISIANA.—Better than normal crop from willow, tupelo, and other sources already harvested and splendid flow continues; about one-half of season's crop harvested; crop will be smaller than usual, the colonies being only one-half the normal number and weaker than usual at the opening of the flow.—J. B. Marshall.

SOUTH CAROLINA.—Four-fifths of normal crop from crimson clover and poplar harvested; one-half of season's crop harvested.—H. O. Entrekin.

FLORIDA.—Crop much below normal from pennyroyal, orange, and saw palmetto harvested. In the counties of DeSoto, Lee, and Manatee the crop is practically a failure.—Ward Lamkin.

FLORIDA.—Eight to ten per cent of normal crop from orange, saw palmetto, and bay harvested. One-third to one-half of season's crop harvested. —C. H. Clute.

ALABAMA.—First surplus is from sweet clover, which has just begun to bloom. None of crop as yet is harvested.—J. M. Cutts.

NORTH CAROLINA.—Three-fourths of normal crop from tupelo and other gums, holly, gallberry, and tulip-poplar harvested; three-fifths of season's crop harvested.—C. L. Sams.

TEXAS, south-central and southwest. — Fifteen per cent above normal crop from huajilla and horsemint harvested; one-half of season's crop harvested. —H. B. Parks.

EAST TEXAS.—Normal crop from sumac, Spanish mulberry tree, and horsemint just being gathered.—T. A. Bowden.

TEXAS.—Crop above normal from huajilla and catclaw harvested; one-half or more of season's crop harvested.—J. N. Mayes.

NEW MEXICO.—Bees and honey plants in very satisfactory condition.—Smith & Gunter.

NEW MEXICO. — Prospects good for medium crop. Alfalfa is source of first surplus flow. But little, if any, honey expected before July 15.— Geo. E. Dudley.

ARIZONA. — First bloom of mesquite yielded practically nothing. Long-staple cotton has taken the place of alfalfa, and so far has proved of little value for honey.—E. Draper.

OKLAHOMA.—Loss 60 per cent in Oklahoma County; colony condition very poor, plants extra good; prospects are fine.—D. E. Barker.

CALIFORNIA.—Crop below average from orange in this locality harvested; 80 per cent of season's crop harvested.—A. E. Lusher.

CALIFORNIA.—Normal crop from orange, black sage, and mesquite harvested; 25 per cent of season's crop harvested.—L. L. Andrews.

Special Notices by A. I. Root

THE NEW ANNUAL SWEET CLOVER UP TO DATE.

Today is June 24, and I have been hoping to get something in this issue still later from the new sweet clover in Bradentown, Fla., but it has not yet come. Below is a letter that I think will be read with much interest:

Mr. Root:—I wish to thank you for the sweet clover seed you sent me last year. I planted them in April in a plot about 20 ft. square. Last year it grew about 3 feet, this year it is now 7½ feet high and in full bloom, the finest I ever saw and attracts everybody's attention for no one has ever seen the like. I hope to gather lots of seed and be able to sow a much larger plot in September.

Bees are very busy from 10 a. m. until dark before they all leave.

I fertilized this plot with cow manure and use nothing else. The ground was in cotton the year before.

Bees are doing fine this season much better than last.

Yours very truly,
L. J. DAVISON.

York, S. C., June 21, 1920.

I shall have to confess I can not quite make out from the above whether the plant stood thru the winter down in South Carolina or whether the writer saved the seed in the fall and sowed it in April of this year. Perhaps he will tell us later.

OVER 1000 BUSHELS OF POTATOES FROM ONE ACRE.

On page 325 of our June issue I said we expected to give you the particulars in regard to this wonderful crop of potatoes in this issue, but I am sorry to tell you it had to be omitted; but we expect to give it with two illustrations in our August issue.

CARE OF THE FEET; CORN REMEDIES, ETC.

On pages 610, 611, September, 1919, I had quite a little to say about remedies for corns. At the present writing, June 24, I am getting better results (and I have tried almost everything advertised) with the Foot Remedy Company's corn-plaster (Millard and Ogden Ave., Chicago) than with anything else. Aside from the above I am wearing a larger shoe than I have worn for years. This shoe is made of fine soft leather, and in each one is a good thick cork insole. Wherever I have been troubled with corns on the bottom of my feet I have cut away this insole. Then I am very careful to have very soft stockings, and to be sure, when putting them on, that there be no wrinkles, especially around or near the toes. If there is to be a wrinkle anywhere let it be back of the heel; then when the weather is bad and muddy I wear suitable arctic overshoes, and thus avoid getting my feet soaking wet.

Advertisements Received too Late to Classify

WANTED.—Position in bee-yard, by man with some experience, but wishing to learn more. Steady and industrious. Ready to leave at once.
Alex Marnor, 214 Fuller St., East Akron, O.

FOR SALE.—Root Improved wax-press, used once, good as new, $10.00 takes it.
C. D. Doane, Otisville, Mich.

FOR SALE.—10 colonies Italian bees, Root strain, on Hoffman self-spacing wired frames. Combs drawn from full sheets foundation in 8-frame dovetailed hives, new last year and painted. Guaranteed free from disease. Price, $15.00 each.
John E. Everett, Bound Brook, N. J.

FOR SALE.—Just as they come about 40 yearling clipped queens, $1.00 each and provisioned cage to be sent by buyer. A few two-year old, same price. Have had queens from Doolittle, Moore, Laws, Lockhart, Bates, Bankston, and others, but never got one that averaged any better than ones I raise myself, except one from Doolittle about 30 years ago. Virgins after Aug. 1, 50c. No circulars. S. B. Post, Locust Land Apiaries, Box 65, Rt. 6, Washington, Pa.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping-boxes, and three-frame nucleus colonies.

I. J. STRINGHAM, GLEN COVE, Nassau Co., N. Y.

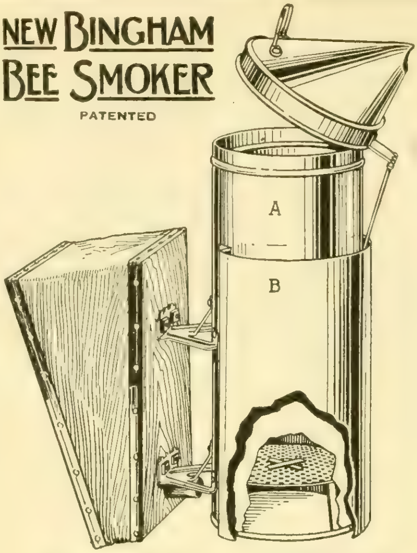
Queens--Rhode Island--Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, $1.25 each; 6 for $7.00. Circular on application. Queens delivered after June 1.

O. E. Tulip, Arlington, Rhode Island
56 Lawrence Street

NEW BINGHAM BEE SMOKER

PATENTED



The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries.

Postage extra	Size of stove inches	shipping weight lbs.	price
Big Smoke, with shield	4 x10	3	$2.50
Big Smoke, no shield.	4 x10	3	2.00
Smoke Engine	4 x7	2¼	1.50
Doctor	3½x7	2	1.15
Conqueror	3 x7	1¾	1.00
Little Wonder	3 x5½	1½	.80

Smoke Engine or Doctor, in copper, $1.00 extra.

The Big Smoke has just been produced in response to a demand for a larger-size smoker, one that will hold more fuel, require filling less often, from extensive bee handlers.

Conneaut, O.

A. G. Woodman Co.,

Dear Sirs:—The Big Smoke Smoker received and is satisfactory. It is just what I have been wanting for 10 years.

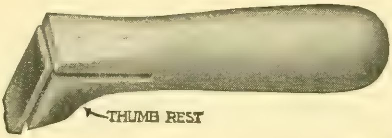
W. Klabuhn & Sons.

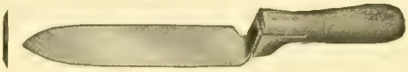
East Lansing, Mich., May 10, 1920.

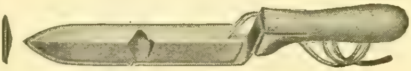
A. G. Woodman Co., Grand Rapids, Mich.

Dear Mr. Woodman:—I have now had several weeks' opportunity to try out the New Smoker called the Big Smoke, with the guard about the fire pot. The smoker is even more than I anticipated and unless something else is brought out that is still better, you can be assured that this particular one will be standard equipment for this place from now on.

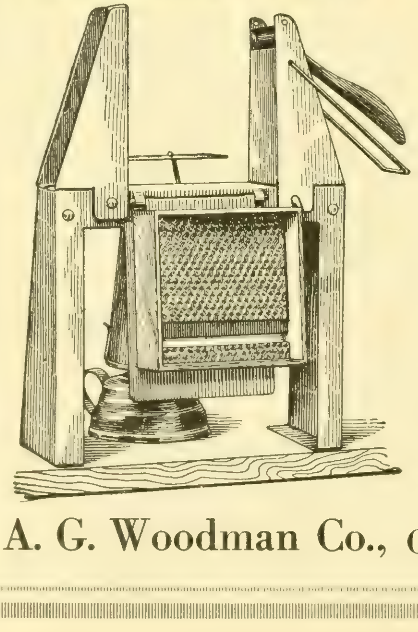
B. F. Kindig,
State Inspector of Apiaries.







The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

TIN HONEY PACKAGES.

2 lb. Friction top cans, cases of 24
2 lb. Friction top cans, crates of 612
2½ lb. Friction top cans, cases of 24
2½ lb. Friction top cans, crates of 450
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 200
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 100

Ask for our special money-saving prices, stating quantity wanted.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

Seasonable Suggestions:

Hoffman frames with 1 1-2-in. spacing supplied for either standard or Jumbo depth. Write us if interested.

Note that packages weighing up to 70 pounds may be sent by parcel post. If you are on an R. F. D. route it is often cheaper than express or freight on quite large shipments. We make a specialty of quick service on all such orders.

We want beeswax. We pay the highest market price. How much have you?

We supply Root's goods in Michigan. They are best known for their good quality. Our part is quicker and cheaper service.

Beginners' outfits either with or without bees. Our best equipment included with them. See pages 51-54 of the new catalog.

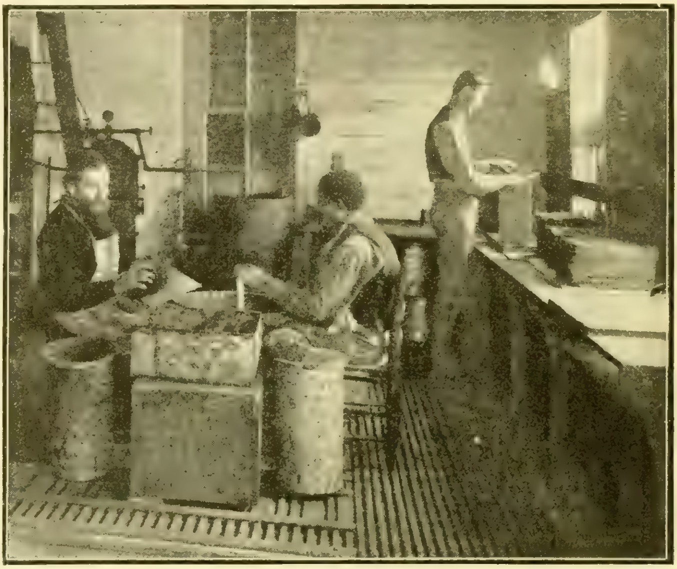
M. H. Hunt & Son
510 North Cedar Street
Lansing, Michigan

DADANT'S FOUNDATION

WAS FIRST MADE BY HAND

Many are unacquainted with the method of making bee comb-foundation by hand. To these the following sketch of how DADANT'S FOUNDATION was first made may be interesting.

It was first necessary to get thin, plain sheets of beeswax. This was done by the dipping process. Smooth plain boards, after being wet, were dipped into the hot beeswax, then hung up to cool for a moment, when the edges were trimmed, and the flat sheets on both sides piled up and set away to cool.



"Dipping"—the first process in the making of foundation.

These piles were now cut up into sheets just as wide as the foundation was to be, and after being tempered in water were run through the milling machine, or moulder, which gave the impression of the comb. Soap was and is still used on these mills to keep the foundation from sticking.

Another trimming with a sharp soaped knife and the piles of DADANT'S FOUNDATION were ready for ever careful papering and boxing for the customer.

DADANT'S FOUNDATION (Every inch, every pound, every ton equal to any sample we have ever sent out.) :: :: :: :: ::
Specify it to your dealer. If he hasn't it write us.

DADANT & SONS, HAMILTON, ILL.

CATALOG AND PRICES OF BEE SUPPLIES, BEESWAX, WAX WORKING INTO COMB FOUNDATION AND COMB RENDERING FOR THE ASKING

GLEANINGS IN BEE CULTURE

JULY, 1920

EDITORIAL

Help Prevent Early Cutting of Sweet Clover.

IN MANY STATES sweet clover is classed among the noxious weeds; and until quite recently the law in several States was such that road supervisors might enter a farmer's fields and cut sweet clover that he himself had sown. Even now the supervisors in many places are ordered to cut it along the roadsides and vacant lots before it blooms.

Gleanings has often regretted the unnecessary waste caused by the cutting of sweet clover before blooming, and has urged beekeepers to use their influence in having such sweet-clover laws repealed, and to prevail on city councils to allow sweet clover to grow till after bloom. We have received several letters from different ones who have succeeded in getting their city councils to allow sweet clover to remain until after blooming.

R. D. Burnham of Champaign, Ills., who in 1918 was county food administrator for his county, found the road commissioners willing to let the sweet clover come to bloom. He wrote us stating that, as a result of the action taken in regard to the conservation of sweet clover, one beekeeper who had ten colonies of bees extracted an average of over 124 pounds. All this shows that it is decidedly worth while for beekeepers to bring before the proper authorities the constantly increasing importance of sweet clover as a honey plant and to exert their influence for the repeal of all objectionable sweet-clover laws.

* * *

Losses Greater than at First Reported.

WHILE THE PAST winter was very hard on bees, the heaviest losses occurred in the spring months, particularly in March and April. The Government reports likewise show heavy losses all over the country and then add: "The winter's experience provides ample proof of the efficiency and economy of adequate winter protection;" and they might have added that extracting close and the inability to get sugar were very important contributing causes in the great mortality of bees thruout the country.

The package men report that the demand for bees is the greatest they have had in all of their experience. Colonies and whole apiaries of bees are bringing high prices.

How far this general shortage of bees, due to winter and spring losses, will affect the total amount of honey in the United States can not at this time be determined. In many sections of the East, clover is showing up the best it has for years, and, if there had been bees to gather the crop, there would have been a big yield of clover honey. There may be anyway, as late reports from the East tell of bees' having built up exceedingly well during late May and early June.

* * *

Exclude the Light.

EXPERIENCE IS beginning to show that bees sent in combless packages where the light is excluded, go thru in better shape than in the usual open wire-cloth cages. A two- or three-frame nucleus box, wire-cloth top and bottom, containing frames of foundation, is better than an ordinary wire-cloth cage, provided that the nucleus has a wooden cover about an inch above the wire cloth on top to shut out the excess of light. The main point is that the sides of the case should be closed with wood. Thousands of pounds of bees have been shipped from the South to the North this last spring. The weather was so cool most of the time that practically all the shipments went thru in good order, regardless of whether light was excluded from the package or not; but this was because the weather favored. If these same shipments had been made in hot weather, the bees in the open-wire cages, we believe, would have suffered severely.

* * *

Warning.

WE WISH to emphasize what we said in our last issue that beekeepers all over the country, north, south, east, and west, should reserve enough combs of good honey for winter stores out of their surplus, as there is every probability that sugar will not be available this fall for winter food. To say the least, it is very wise to play safe by holding in reserve honey stores which can be sold in the event that there is a fall flow or that it will be possible later on to secure sugar.

But, even if it is possible to get it, the price may be higher than sealed honey in combs. The heavy loss of last winter and spring was due in part to the fact that beekeepers could not obtain sugar late last fall. Do not let that experience be repeated.

For **outdoor** wintering the opinion is growing that stores of good honey are better than sugar syrup. For **indoor** or **cellar** wintering sugar stores are better than natural stores, but for the period of confinement only. After that, honey is undoubtedly better.

Beekeeping in Buckwheat Regions

THE DEPARTMENT of Agriculture at Washington has just issued a new bulletin on buckwheat, which will be of interest to the beekeepers of those sections of the country where this plant is extensively grown. It may be had free on request by asking for Farmers' Bulletin 1062. The bulletin is written by Dr. Clyde E. Leighty of the Bureau of Plant Industry, who has evidently had considerable experience with this plant.

Of special interest to beekeepers is the brief discussion entitled "Buckwheat as a Honey Plant." A few sentences from this section are worth quoting. "It is estimated that an acre of buckwheat growing under good conditions may supply as much as 150 pounds of honey in a season." "Commercial beekeeping in buckwheat-growing sections is advisable, as bees can make use of the flowers produced and may in turn be of use in fertilizing the flowers. Many buckwheat-growers, in fact, believe that the weight per bushel of seed is heavier where the crop has been worked largely by bees." This gives an official endorsement to beekeeping in this region, which should serve the beekeepers of the region in good stead when they are looking for out-apiary locations. It is also in harmony with the experience of beekeepers, as the average amateur, unfamiliar with European foul brood, has a hard time of it in the buckwheat region. Thousands of colonies are put out of commission every year from this disease, and it is unsafe to recommend anything but extensive beekeeping in that section.

"The great need in such localities, however, is for a honey plant coming on earlier in the year than buckwheat; as, otherwise, European foul brood is sometimes very destructive. Alsike clover, sweet clover, winter vetch, and, in the more southern regions, crimson clover offer possibilities in this direction."

We do not understand the author to advocate the growing of these plants for honey alone. In the first sentence just quoted the author has hit upon the great weakness of the buckwheat region; for the honey flow from this plant, coming as it does after the season for European foul brood, allows the colonies to be depleted by disease. Naturally, it is outside the province of this bulletin to give the remedy for this condition. It lies in keeping the bees in such shape that they are ready for white and alsike clovers when they come into bloom. This is, in itself, a paying proposition. The great thing is to have the colonies so strong in the spring that European foul brood does not have a chance. There is probably no region in the country where annual requeening with Italian stock and the best of care in winter are so important as in the buckwheat section. To the thoroly experienced beekeeper of the buckwheat region European foul brood has no terrors, but there are not enough beekeepers of this kind. This Farmers' Bulletin is one which every beekeeper of the buckwheat areas will want to have for reference and for distribution among his neighbors.

Sugar and the Honey Market.

WITHIN THE LAST few months the price of sugar has been soaring and it is still going up. In some sections it has been bringing from 25 to 35 cents a pound, and there is a possibility that it may reach a higher figure still. In the meantime we hear of certain profiteers on sugar being arrested, and other sugar-curbing activities. Why sugar has gone up, or whether the government could have stopped it, or whether politics will protect the profiteer, is not necessary nor pertinent to discuss here. As Grover Cleveland used to say, "It is a condition, not a theory, that confronts us." The price of sugar is up and probably will stay up. As everyone knows, the price of honey is affected by the price of sugar. When the latter is hard to get and high-priced, the demand for honey is stimulated. Early this season the honey market was weak. In the meantime sugar began to go up, with the result that the market on honey began to get better, and there is every indication that there will be a good demand for honey this fall.

Conditions that make sugar scarce and high-priced in the United States also obtain in Europe. The result is that Europe is beginning to look now to America for honey.

The canning season will soon be here, and the housewife can get but a pound or two of sugar at a time. If she can obtain honey, **all she wants of it and at a less price,** she will use honey, of course, and the beekeepers of the country should not be slow to inform her about the value of honey for canning purposes. Heretofore, she has argued that sugar has been much cheaper than honey, and that was true. Now, apparently the tables are turning. In most cases honey is not only cheaper, but superior to sugar for canning. Bulk for bulk, honey goes farther than sugar.

For canning purposes a mild-flavored honey is preferable. For example, one would not like to eat peaches with the strong flavor of buckwheat. He would prefer the peaches for the peaches' flavor. It is our opinion that honey from cotton, mountain sage, star thistle, tupelo, gallberry, and clover would all be well adapted for canning. Orange, alfalfa, and basswood would be too pronounced for canning.

Off or strong flavors of honey can be used for cooking, for making cakes and pastries, and for puddings. Formerly sugar was used as it was cheaper than honey, but here again the tables turn.

If beekeepers do not use the splendid opportunities ahead to introduce honey to the housewives, it is their own fault. They should play that kind of slogan to the grocer and all of their local trade.

In a word when sugar is scarce and high-priced, honey is going to benefit, **but the beekeeper must not make the mistake of charging too much for his product**, or the housewife will choose sugar instead. If we can once show the housewife that honey can be used for canning and baking, we shall have scored a big point for all time to come.

* * *

How to Ship Bees in Refrigerator Cars.

JUST AT this time bees are being moved in carlots from localities in the South, where the main flow is over, to northern localities where the flow is about to begin. Some large producers make a practice of shipping their bees in carlots south in cattle-cars in the fall when the weather is cool or cold, building them up while in the South and catching a crop, then moving them back again to the North in iced cars during hot weather. Shipping bees in the ordinary way in cattle-cars during hot weather is usually attended with considerable loss. The editor in his travels over the country has interviewed a number of producers who ship in refrigerator cars, and the following is the general plan that is used:

First, a refrigerator car must be selected that has ventilating coops or scoops on top at each end. Some ventilation, even in iced cars, is important. The bees are put into the cars in much the same way that they are packed in open cattle-cars, with this difference—that less of ventilation to the individual colony is required. Every hive should have a wire-cloth screen on top; and between each two tiers of hives there should be placed 2 x 4's; and these should be braced in the usual way so that the end shocks as the result of stopping and starting may not break loose the fasteners.

During hot weather much stronger colonies can be shipped in refrigerator cars than in open cattle-cars; but one must be careful not to overdo it. Some men think it is necessary to have a half-depth super on top to provide extra clustering room. Some of them say the hives can be packed solid like so much cordwood. This may be all right for short distances, and where the car is moving along on schedule time. But we do not recommend it even then. It is advisable rather to leave an alleyway thru the middle of the car, so that an attendant can note the condition of the bees. He should see that the car is iced at intervals of not more than two or three days. In any case, should the car get out of ice the result will be disastrous. In the event of an accident or delay, so that ice cannot be procured, the bees must be immediately unloaded, for they can not be confined in a refrigerator car without ice. They should then, after a flight, be reloaded into an ordinary cattle-car, provided a refrigerator car fully iced can not be obtained.

It is important that the attendant get on top of the car himself when it is being iced, and, if necessary, help fill the ice-compartments. Railway employees sometimes do not see the importance of fully icing the car, with the result that the owner of the bees may suffer heavy losses.

Arrangements should be made in advance to have the car iced often—the oftener the better, because the bees will generate a large amount of heat. If they can be kept as cool as they are when in a cellar, and the car be kept moving, except for icing, they will go thru with the loss of hardly a bee.

Where colonies are very strong, or of honey-gathering strength, it is advisable to use two stories. If they are fairly boiling over with bees, it may be necessary to use top and bottom screens in addition. The shipper will have to use his own judgment, always erring on the side of giving too much ventilation or too much room.

It goes without saying, that the attendant does not ride in the car with the bees where ice is used. He can have the "comforts" of the ordinary caboose, and, to see how things are moving, he should open the car only when the train stops. On entering, he should close the door immediately to shut out the warm air and the light.

The important factor in moving bees in iced cars is the exclusion of heat and light. If bees can be brought down to a cellar temperature and kept in total darkness, they will soon become accustomed to the rumble and jolts of the train.

We are not sure but that refrigerator cars without ice would be better than common cars, even in cool or cold weather.

Last, but not least; after loading the bees, don't close the car doors until half an hour after the ice is put in. This will give time for the car to begin to cool from the ice. Better put the ice in before loading the car, if possible.

POINTERS BY A BIG PRODUCER

How He Extracts and Handles His Thousands of Colonies to Produce Extracted Honey Most Efficiently

By Wesley Foster

WE believe that good roads and locations in which there is a maximum of working days during the season comprise one of the secrets of successful commercial beekeeping. We think that no section is what it should be unless there is a maximum number of good working days for the bees and beekeepers during the season, and the accessibility of these locations to the beekeeper's home is highly important. If a beekeeper, when needed, cannot be at his yard on account of poor roads, it is a poor location in spite of the good honey flow. No large system of out-apiaries can be successfully managed unless the means of transportation are ample and easy. Beekeepers are like other people; they do not like to work any harder than necessary, and they will neglect their work unless the yards are accessible and the weather favorable so that the best work can be done.

Feeding the Bees.

As we use a great many 8-frame hives in our bee work we find that it is often necessary to do considerable feeding in the spring. In fact, it occurs quite often with our 10-frame colonies, so that until such time as we feel disposed to adopt the Jumbo hive we think we shall have to do considerable feeding in the spring.

As we are in locations where there are a great many neighboring colonies, we think it inadvisable to do any outdoor feeding. We make our syrup half or more sugar, mixing it as hot as practicable, and then pour the syrup into the brood-or extracting - frames, which standing over night will drain sufficiently so they can be hauled on our truck to the yards and one or two combs put in each hive. We do this work toward evening, since this method does not induce robbing as it would if we took the combs to the yard and put them in the hives during the middle of the day.

Our Manner of Handling Queenless Colonies.

In running for extracted honey every producer, I think, has the experience of finding, each spring, quite a number of colonies that are queenless. We know this is our experience, and when attending to our queenless colonies we think it does not pay to try to requeen them; so they are simply united with other colonies, and a sheet of paper is placed over the colony with which the queenless colony is to be united, the latter being set on top and a small hole punched thru so the bees can work their way thru in a few days. Our time in the spring is too valuable to spend in trying to introduce queens to these colonies.

We rear only a small part of the queens that we use, as we find it is more profitable to have all the queens ordered from the Southern breeders; and by the way, we always order two or three times as many as we need, thus coming nearer getting what our requirements will be than if we should order just what queens we thought we would need. We have had the experience,

An outyard in one of Colorado's mountain valleys.

running over several years, that queen-breeders are never able to fill in full all of the orders that they are given, especially if a very rigid time limit is placed on the order; so we find it pays better to order heavily and then we can let some of the other beekeepers have the extra queens if we get more than we need. We order quite a number of virgins and requeen with them, the virgin queens being mated in the colonies where they are introduced. This saves the beekeeper a great deal of time and is practically as good as mating the queens in nuclei, for which we have little time.

Cleaning the Hive.

In May and June we spend considerable time cleaning up the frames, the hive bottomes and the hive bodies. We find that a general overhauling of the brood-frames not only does the beekeeper a lot of good in keeping things clean, but it also builds up the colony to renewed energy. We shake off the bees in front of the colony as we clean the frames, taking from five to fifteen minutes for each hive, but the time is well spent. Feeding is essential soon after, as the colonies breed up so rapidly after this overhauling that many may be short of honey. The main difficulty in overhauling the colonies is that it takes so long to do it that robbing is often induced and the overhauling has to be stopped.

The Treatment of Foul Brood.

We are located in a district where foul brood is prevalent, and as we are running for extracted honey we find that we have more difficulty in controlling American foul brood than when we were operating for comb honey exclusively. However, we treat nearly all our foul brood in a hospital yard and by the time the surplus flow begins we aim to have everything treated and ready for the honey flow. We pay little if any attention to maintaining the usual number of colonies in the hospital yard. We unite until we have every colony strong, as it is useless to keep the number of colonies at the expense of strength. In fact, we pay very little attention to the number of colonies in an apiary yard, but aim to have everything good and strong for the honey flow; then when things are going nicely we can make whatever increase is necessary to maintain the ordinary number of colonies. We, however, make practically no increase by division, most of our increase being made by purchase, and what increase we have made among our own colonies has been made either at the very first of the season or at the end. In our treatment of foul brood we use orthodox methods and do not take any of our time in experimenting. We use the brushing or shaking treatment and leave the bees on foundation for 36 to 48 hours and then put in full drawn combs, filling the colonies with bees and brood, if necessary, just as fast as possible, as we want everything to be in the honey-producing class at the earliest possible date. Our diseased combs are rendered, and, if there is any brood of value in them, we stack these on top of the diseased colonies until most of the brood is hatched, and everything is then taken away and rendered into wax. The hive is disinfected with fire. The honey is boiled and

THE FOSTER HONEY & MERCANTILE CO.
BEE-KEEPERS SUPPLIES

Wesley Foster's headquarters, and one of his auto trucks in the foreground.

either sold to bakers or fed to our own bees.

Getting Drawn Combs.

In the production of extracted honey we plan in our operations to have two extracting bodies for each colony of bees. During the past several years we have not had two full sets of drawn combs for each hive to begin with. The most that we have had has been one set of drawn comb and one set of full sheets of foundation.

Our increase in bees has been so rapid that we have had to use extracting combs for brood-combs for our increase, and in this way we have never had full drawn combs for each colony to begin with. However, our honey flows have been favorable enough so that we have lost little if any honey by having the bees draw out their combs before storing the honey.

Early in the season we have quite a spring flow from dandelion and fruit bloom, and we remove combs from the brood-chamber of many colonies and insert full sheets of foundation. In this way we get a great many combs drawn out prior to the alfalfa-sweet-clover honey flow. This not only relieves congestion of honey in the brood-nest, but also gives the queen new combs to rear brood in, which we think is a very desirable feature of operations for this territory. We put in these full sheets of foundation at the time we are equalizing stores and doing general spring work. We have found our spring work with the bees is as valuable for stirring up the colony to renewed energy as the work which we do in cleaning the frames, equalizing honey, and ascertaining the work of our queen.

Extracted-honey Equipment.

We believe that in the production of extracted honey it is important that economy should be exercised at all times, and especially in the putting up of equipment, wiring frames, putting in foundation, nailing up beehives, etc. We use time cards for all of our men so that we know how many frames a day they wire or nail, and in this way we aim to cut down the expense of labor of operations. We find that it costs us about 75 cents per 100 for nailing frames, about the same for wiring, and about 75 cents per 100 for putting in the foundation and imbedding it with electricity.

We have not taken up any of the methods of wiring frames illustrated in the bee journals. We think that if the work is done properly little, if any, sagging will occur in frames where four horizontal wires are used, and if we want to do a good rapid job of imbedding we prefer the four wires. Possibly, when we have looked into the matter a little further, we may take up the matter of wiring so there will be no sag to the brood-combs. We think this would be a desirable feature in the imbedding of the foundation when we find a method that is rapid enough to adopt.

The Use of Queen-excluders.

We believe that the use of the excluders limits the queen in egg-laying and is a very great inducement to swarming. We prefer to have the queen given the entire run of the hive, even tho it is three or four stories high, rather than to hold her down to one story early in the season. And anyway the bees, along toward the middle and last of the season, restrict the queen in egg-laying, as she generally lets up to a great extent along the middle of July, just at the time we want her to do heavy egg-laying.

In taking out the honey we find little difficulty in replacing the brood back in the

Apiary of W. H. Corthell at Carbondale, Colo., which produced almost a full car of comb honey in 1919; 265 colonies spring count.

lower part of the hive, and by the time the last honey comes off we have the broodnest nicely concentrated in the lower broodchamber. Strong colonies, of course, we leave two stories high for some little time at the end of the season; but we have found very little, of any, advantage in wintering two-story hives, so that we get everything down to one single eight-or ten-frame hive by the time winter comes on.

The Use of the Automobile in Extracted-honey Production.

As we use quite a number of cars in our beekeeping operations and they are all Fords, we have a garage of our own, with a man in charge who looks after the working of all the cars. He has direct charge of this work, and while he is employed also at other operations this is his major duty. In this way we find we have cut down the expense of our cars at least 25 per cent. We think the Ford touring car or roadster is excellent for the beekeeper to use in going from yard to yard where light loads are hauled, but for heavy loads we have found the Ford ton-truck to be economical and practicable. We doubt whether it is advisable to go into the higher-priced cars as the depreciation is greater, and the beekeepers should operate bees as economically as possible and have most of their investment in bees instead of equipment.

We have clung to the cheaper form of automobiles. Possibly, we may a little later invest in several higher-priced cars; but, for the present, we think the cheaper cars are the most economical in the long run.

The Uncapping Box.

The uncapping box has coarse screen at the bottom, on which the cappings fall so that they may thoroly drain. Honey is drawn off every little while into a can and is emptied into the extractor. By handling the cappings in this way no discolored honey is obtained at all, and we are not bothered with the mixture of honey and half-melted wax which accumulates from the Peterson capping melter. We think it pays us so to arrange the work that the extracting crews have very little to do with handling the wax; so, as they bring in this wax that has been well drained, we have a man at the home plant who takes the cappings every few days and presses them out, and then they are ready to put away for rendering in the fall or winter. Our objection to a capping melter is that is overheats the extracting room, which we try to keep as cool as possible.

With the quality of honey we get in this territory, we find it unnecessary to wait for the sealing of the honey more than half the way down the frames, as we have never had any experience yet with soured honey, and the flavor seems to be all that could be desired for honey of the quality we produce. We have read from time to time of the big records made by various men in extracting honey, but will say that two or three men in a crew would, in our apiaries as we work them, extract from 25 to 60 cans per day. We have never had over 60 cans extracted in one working day, and we figure that 35 is a good day's work for three men. However, we keep the men at it and have the honey coming in almost every day for some 30 to 60 days, and this continuous bringing in of honey counts in the long run rather than the heavy extractings that are occasionally pulled off.

Our Trailer Extracting-house.

We operated last season with the portable extracting-house and the outfit that we took from yard to yard where we had houses. We find that the portable extracting-houses require too much time to take down and set up, as the men lose half a day in this operation; so this year we have a four-wheel trailer with an extracting-house and extractor, engine, honey-pump, etc., which we haul from yard to yard while extracting. We think it will be a big help to us in the handling of our crop, as with the trailer extracting outfit we shall be able to handle all of the yards that cannot be handled with the outfit that must be moved from house to house. We use the 8-frame friction-drive extractor with honey-pump and engine. We would prefer electric power, but of course this is not available in the out-yards. If we were going to extract at home we would use an electric motor for this purpose. There is one point that we have not yet decided upon and which we are considering, that is, having a tank trailer built for an automobile. If we use this trailer we shall have to have a tank to put the extracted honey in to haul to the large tank at the home plant where it will be run thru our bottling plant, then emptied into the honey containers of whatever size may be filled from the tank in our home plant. The 60-pound cans receive more hard use, in our opinion, in hauling from the bee-yard to our home place than in any other way, and if we could avoid this handling of the 60-pound cans by the use of a tank trailer we think it would be advisable. We shall have more information on this matter after we have tried it out for one season.

In our apiary work we use wheelbarrows to wheel the honey from the hives to the extractor, and we place our hives in rows far enough apart so that the auto may be driven right down between the rows, and colonies may be moved out by carrying the hives only a few feet to the truck. We think that all arrangements in the yard should be made so that the least possible manual labor will be necessary to perform the operation. There is enough hard work in bee-yards without the needless carrying back and forth.

We have a number of men working in our yards so that we have adopted the use of an apiary record book, which is ruled so that we can number each hive and have a corresponding number in the book. In this way we have a record of every needful thing for each colony. We find that it makes the work more interesting for the men and is a valuable test for the manager in checking up the bee-yard work. We think that every yard should have a number and every hive a number. In this way a few years will give one some very interesting data on the progress of the season, and the information collected will undoubtedly be of value in years to come. Of course, beekeepers accumulate this information in their minds, but to have it down in black and white will be a great reinforcement to the memory.

The Extracting-house.

In our operations we have extracting-houses at about one-half of our out-apiaries, and we store the extracting combs in these houses during the winter. These extracting-houses have floors in which bolts are set so that we can set up our extracting outfit in a very short time. In the apiaries in which we do not have houses built we use our portable extracting outfit, which is on a four-wheel truck.

With each extracting outfit we have two honey-tanks, holding about 10,000 pounds each. These tanks are filled by the honey-pumps, and the honey runs down the inside wall of the tank so that the settling may go on while the honey is running in. If the honey falls right in the center of the tank from the honey-pump, this will throw the honey into the tank in such a way as to keep it in a continual turmoil, and it will not settle much during the day. However, by running the honey down the side of the tank we find that along in the afternoon the tanks may be drained off almost to the bottom, and whatever honey is in the bottom that is not well settled can be drawn off into a can and marked, and then it can be re-settled when it is brought to the home extracting-yard plant. Not over five or six cans in each day's extracting will need further settling or straining.

We have several extra tanks at the home plant where we can handle the honey without the yard men's being delayed in their work.

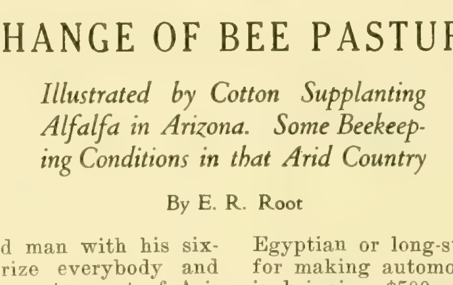
Boulder, Colo.

CHANGE OF BEE PASTURE

Illustrated by Cotton Supplanting Alfalfa in Arizona. Some Beekeeping Conditions in that Arid Country

By E. R. Root

IN the olden days of some 30 or 40 years ago we used to think of Arizona as one great desert of mesquite, cat-claw, and cacti, of the cowboy—the land where the bad man with his six-shooter used to terrorize everybody and everything. While the greater part of Arizona is still a desert, and possibly always will be, yet the transformations that have taken place within the last 20 years rival the tales of the Arabian Nights—not stories of bad men and six-shooters, as seen in the movies, but stories of old-time deserts that are now veritable gardens of Eden. Even in 1901 when I visited that State I saw none of the expected bad things. On the other hand, there were in the Salt River Valley immense fields of alfalfa, cattle, milk, and honey galore.

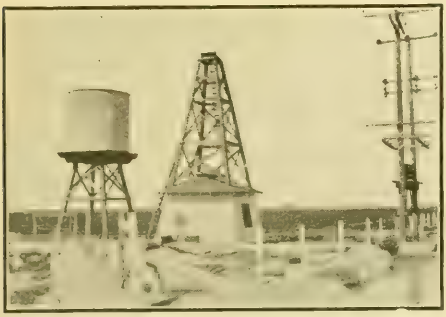


A forest of giant cacti, which range from 10 to 30 feet high. Some seasons these yield a considerable amount of honey—seldom, however, enough for any surplus.

Ever since the desert gave way to these great fields of alfalfa breast-high—the finest I ever saw in the world—bees and beekeepers, lots of them, have been moving there because the alfalfa was then, as it is today, a wonderful honey plant.

Within the last three or four years a wonderful change has taken place. Alfalfa has given way to the Egyptian or long-staple cotton that is used for making automobile tires—a cotton that is bringing $500 a bale, and is scarce at even that enormous figure. Cotton, on account of the enormous prices paid, gradually supplanted the alfalfa until today nine-tenths of the old alfalfa land is devoted to the growing of cotton. The once enormous cattle industry and, with it, the dairy interests were struck a body blow. Nothing must stand in the way of the automobile industry when the rancher was paid all the way from 60 cents to $1.00 a pound for his cotton, and he could make a clean profit of $300 to $500 per acre for his land. What cared he so long as he got his price? Then the price of land began to soar, too. It became so fabulously high that many of the ranchers began to sell, and buy the same kind of land at one-third the cost further south in the Santa Cruz district. In the meantime there was a mad rush for the production of cotton.

A near view of a giant cactus which was taken within half a mile of the apiary of Mrs. Lovett.



A view of one of the wells and hydro-electric centrifugal pumping-outfits on the Goodyear property where long-staple cotton is grown for automobile tires. The amount of water delivered is astonishing.

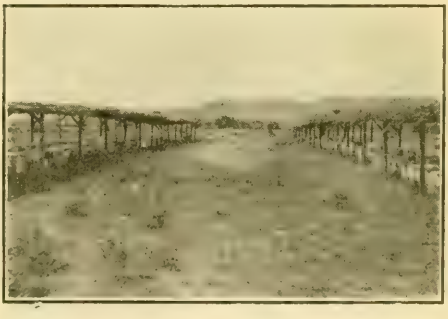
At first the beekeepers of the Salt River Valley were expecting their industry to go like the cattle and dairy interests. As a matter of fact, some of them did get hit hard. Alfalfa land around the locations was plowed under, and cotton took its place. In some localities cotton yielded honey, while in others it did not. But while the honey-producing industry seemed to be in danger for a time it has since developed that the cotton may be a blessing in disguise. The alfalfa honey of Arizona is a light amber. The cotton honey of today is white, and of almost a neutral taste or flavor, much like that of sugar syrup. As to quantity, it may equal the production of alfalfa—not because cotton will yield as much honey per acre, but because there will be more acres of cotton than of alfalfa in its best days. Many of the beekeepers around Phoenix and Tempe are just becoming accustomed to the change. Apparently most of them are neither sorry nor glad, because they do not yet know what is going to happen. Some of them are producing more honey than they ever did in the good old alfalfa days, and others are doing as well as they formerly did.

Long Staple Cotton.

The long-staple variety of cotton has a fiber two or three times as long as ordinary cotton, and hence its adaptability to the making of a fabric for automobile tires. The product is so perfect that the Goodyear Rubber Company has some 12,000 acres of long-staple cotton under cultivation, and 12,000 more that will be opened up soon. And not only that, but, so we are told, they are offering the farmers and ranchers who are growing cotton independently a minimum price of 60 cents a pound, with the further stipulation that they will pay as much more as the market will afford. If I am correct, a dollar a pound was the last figure paid. The company employs Mexicans and Indians to do the work, furnishing them comfortable houses and supplying them with legitimate forms of amusement, such as moving pictures and outdoor sports.

The irrigation ditches leading from each well are lined with cement to prevent erosion and clogging. The pumping stations are located over the entire 12,000 acres, about a mile apart.

Talk about the grand rush to Oklahoma and the Klondike! It was nothing in comparison with the furore of enthusiasm that is now manifest in the Salt River and Santa



A typical Arizona apiary. Practically all bee-yards in Arizona and Imperial Valley, Calif., must be under grass sheds, standing nearly east and west, so that the sun never shines on the hives.

Cruz valleys of southern Arizona. The business of raising cotton is spreading over into Tucson; for at the possible price of $1.00 a pound it is better than a gold mine, because it is a sure thing, or, at least, it looks that way now. In Arizona on the desert there are thousands of acres that will grow cotton. All that is needed is water. Desert lands that were supposed to be worth practically nothing are now being redeemed, and in some cases good cotton land is bringing as high as $1000 an acre. Indeed, I am told it will earn annually a net profit of $200 to $300.

What is occurring in the Salt River Valley is also taking place in the Santa Cruz Valley, with Nogales as the center. On both sides of the international boundary, cotton is raised more than around the region of Tucson. Cotton must have a warm or hot climate, and the probability is that it would not thrive very far northward in Arizona, perhaps not more than 50 or 60 miles beyond Phoenix.

Mrs. M. G. Lovett and her foreman at one of her yards of 290 colonies on the Indian reservation. Unlike most apiaries in Arizona, this had no shed over it, because she had been expecting to keep them there only during the winter.

While cotton is not as heavy a yielder of honey per acre as alfalfa, and while it does not yield nectar in all localities, yet where the soil is good and cotton thrives we may expect that there will be also bees and beekeepers. The result of this wonderful transformation of alfalfa to cotton, instead of killing the industry of honey-production in Arizona, will,in the end, build it up, and, in those parts of the State where cotton does not grow, there will still be found the alfalfa, sweet clover, and the desert plants. Alfalfa can be grown on lands that are supplied with water that comes from a high elevation. Cotton, however, is so profitable a crop that in some sections of Arizona it pays to pump the water by hydro-electric pumps from wells onto lands too high to be reached by water that is conveyed from point to point by gravity.

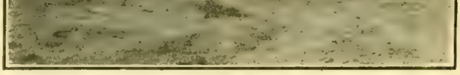
We have a remarkable case of this on the Goodyear Rubber Company's 12,000-acre tract that is irrigated with water solely from wells. These wells are placed from one to two miles apart and are about 200 feet deep. The Roosevelt dam, further north, is opening up to irrigation immense areas that can be reached by gravity.

In addition, this remarkable dam is supplying hydro-electric power for pumping water from wells for irrigation, as in the case of the 12,000 acres of cotton land owned by the Goodrich Company. In this connection, it is well to remember that thousands of other acres also can be irrigated by hydro-electric pumps whenever the value of the crop is great enough to warrant the expense.

Beekeeping on the Desert.

So far I have said absolutely nothing about beekeeping on the desert in southern Arizona. One would naturally think that men and animals on lands where there is very little rainfall would die, but this is far from the truth. Thousands of cattle and sheep can be and will be raised on desert land without any cultivation or care whatsoever. In and near Phoenix, on the Indian Reservation, for example, cattle and sheep are grown in immense numbers on the virgin deserts. There are many plants that can be eaten, chief of which is wild Indian wheat. It is a little shrub, or rather, a grass, that looks somewhat like wheat, only it is very small. It seldom grows higher than five or six inches; but the cattle eat this so-called wheat and seem to thrive on it. It is a native product, growing wild. On account of Government restrictions, it is probable that it will be a long time before the white man gets these Indian lands. While the Caucausian would probably be able to get out of these same lands a hundred dollars where the Indian gets one, that will make no difference.

On these reservations bees can very often be kept to advantage. Indeed, those growers of cotton who keep bees could, during the winter, move them to the desert. The Indian wheat of which I have been speaking is valuable for both pollen and honey. Then there are a great many other plants, such as wild hollyhocks, that yield some honey. These hollyhocks are very showy, having reddish-purple blossoms. The arrow-weed is another brood-booster. The water mota, or bottom willow, has a small composite yellow flower. This plant is



Mrs. Lovett's apiary out on the Indian Reservation.

found along the creek or river beds that are dry most of the time. Buckthorn is another desert plant.

The principal beekeeper, the one who is credited with knowing most about beekeeping conditions in the Salt Lake Valley, is Mrs. M. G. Lovett, of the Lovett Honey Co., Phoenix. Her husband is a newspaper man; and she, formerly a newspaper woman, is the one who runs the bees; and not only that, she works them herself. She has a very competent man as an assistant, and he, together with other help that they can hire on occasions, manages about 1500 colonies. She has an apiary out on the Indian Reservation; and at the time I was at the yard the colonies were working on bottom willow and were two, three and even four stories high. In fact, the colonies were so very strong that I quite agreed with her that it would be an advantage to sell three pounds of bees from each colony, and suggested that she make a practice of disposing of them in March to beekeepers of California, Utah, Colorado, and Idaho, in order to get rid of the excess of bees. With such strong colonies as these it is not surprising that Mrs. Lovett makes such a success of beekeeping.

Indian wheat.

GET MORE HONEY

A Better Knowledge of Nectar Secretion Would Secure Much More Honey in Almost Everybody's Locality

By Frank Coverdale

AFTER several seasons of careful investigation I have learned that my location will support three times as many bees, and at the same time yield 2½ times more surplus, or that 300 colonies will yield 2½ times more honey than 100 colonies would with the same treatment, except that a little more feeding generally has to be done between fruit bloom and white clover.

Fifteen years ago there were 500 colonies of bees, all in about one square mile. Upon investigation I found that the colonies year after year yielded but a trifle less than did mine that were located six to eight miles apart, and eighty to one hundred in a place. The matter was hard for me to understand. I undertook to estimate the number of acres within three miles of all those colonies, and there were, as nearly as I could count, about 500 acres of clover in each location; but now that alsike has become generally sown for hay all over this country, the acreage is nearer 700 per location.

At present, therefore, I believe that 400 colonies in each yard will pay better in dollars than a smaller number, so far as the clovers are concerned. However, for so great a number the fall flow in some seasons might fall a little short for winter supplies; but I do not believe from what I have seen that there would generally be any lack, even with 400 in one yard; as the 500 spoken of above, year in and year out, had sufficient for winter stores from heartsease and the sweet clover. The wonder is that, at a place where only 30 colonies are kept, ten miles from my 300-colony yard, little difference is noticed in the supers. I have watched the bees and looked for nectar, hoping to solve this problem. I have found that 200 acres of sweet clover at a time when little else is in bloom affords but very scant surplus for 300 colonies; but that when other bloom is out at the same time, it counts for more. This shows very clearly that if one has only 100 acres of sweet clover for 300 colonies, and if the clover blooms for six months, the bees would gather only enough to keep in good condition, and would store no surplus to speak of; but, if 500 acres of white clover and 200 or 300 acres of alsike are added to the pasturage, all the nectar from the white and alsike will be available for the surplus chamber.

Some years ago it was thought by at least one writer that the blossoms yielded nectar only until fertilization took place. This I have found to be not the case, and that clovers as well as apple blossoms continue to secrete until flowers are very near the ripened stage. In fact, I found the nectar most abundant at the time when the bloom was almost ready to drop—that is, that a given blossom actually increases in nectar secretion until nearly ready to fall. The best opportunity for observation along this line was afforded by a field of red clover during a very dry season. This field was allowed to stand until nearly ripe; and I found that, the riper those heads became, the thicker the nectar; and that when the tubes began to ripen the bees actually crushed or crinkled the tubes, which enabled them to reach more deeply to the base of the tubes.

All this has led me to believe that each blossom secretes so much nectar, like a tiny spring which, when emptied, will in a certain length of time fill up again. The blossom, I believe, repeatedly fills up until the bloom is nearly ripe. And so it plainly appears that, if not enough bees are kept in a given location, then there is waste on account of a lack of enough bees to gather it, just as surely as there would be waste and loss in a given field of grass if not enough cattle were turned in to use the growing crop.

Thirty years ago I held that 100 colonies were all that I dared keep in one place. This belief was erroneous. Had I come to a right understanding at that early time, then all the past years would have been much more profitable to me. I hear some one ask, ''What about the poor seasons?'' Well, these come rather too often; but I have found these seasons to be poor anyhow, whether there are few colonies or many. To be sure, it takes more feed to supply 300 colonies than 100. Yet it has been surprising how this larger number of bees get nectar in even a poor season.

This article is simply meant to help others to study and investigate for themselves, and not to lead any one to increase rashly the number of colonies on a given pasturage. After all is said, it will be safer to keep increasing until you find the right number. I know that, for my location, and all the other locations about here, it will pay best to keep at least 300 colonies, and I do not know how many more; and my location is not a very good one, since, in a series of years, it will yield only about 50 pounds of extracted honey and less than half that much of comb honey. In my locality the only way that the business can be made into a good money-making proposition is to keep more colonies in one yard and as many yards as one wishes. I think it is a very safe statement to make, that more honey goes to waste in Iowa than is saved, and that some day, thru proper education, waste will be better avoided, as it is in other industries.

There are now in my location on a strip two miles wide and ten miles long over 800 colonies, or enough bees to produce annually 40,000 pounds of extracted honey—not a bad income for any one man who will be satisfied and has a liking for the business. Again, I feel equally certain that 300 colonies on the above territory would yield only 21,000 pounds.

In summing up, I wish it to be understood that, whether 300 or 100 colonies are kept in one yard, those bees will, nine times out of ten, have abundance for winter stores; but where there is but little late bloom to supply winter stores a different figuring will be necessary, and a good fall flow is practically rising the hill to the next season. There are locations in my State where fall bloom is much scarcer than here, and in such localities fall feeding would have to be done. For the beekeeper who wishes to increase his numbers in any one locality where the clovers are plentiful and late fall bloom much less in acreage, it will be this scant fall flow that will, after all, measure the real capacity of any one location where conditions are as they are here, unless one wishes to count on a general feeding each fall for winter stores,

Delmar, Ia.

A boy who got $125 for his summer's fun with bees. See page 408.

FROM THE FIELD OF EXPERIENCE

PRODUCING A GOOD CROP

Some Suggestions as to How to Get Good Results in the Apiary

My first swarm came to me in 1885. I was at work in the field when my wife sent out a luncheon by my daughter. She saw something unusual on a big weed and when she arrived told me she had seen a big bunch of flies in crossing a slough and was afraid for some time to pass by. On investigating, I came into possession of my first swarm. In three years they increased to 11 colonies, and noticing in Gleanings, Mr. Hutchinson's advice, "If you want to succeed, keep more bees," I accordingly continued to increase the number. My limit seems to be from 60 to 100 colonies. I raise my own queens and sell quite a lot. I have tried all races and their crosses, but for 10 years or more have had Italians only.

My colonies are set out in a half-diamond. The corner of the diamond comes close up to the north side of my house, the basement of which I use as my storage place for supplies. In this way all the rows come close to the base of supplies, saving many steps. One of my colonies filled fourteen 10-frame supers, nine frames to the super.

I have always run for comb honey until the war, then I changed to extracted, and now having over one thousand combs don't like to change back. The way I get results is to have all colonies ready in September the previous year, with lots of young bees and stores and also young queens. When putting them in the cellar, every hive is weighed and numbered, and a record is kept of the weight and of the weather at the time of putting in and at the time of taking out of the cellar. I also make note of queens that have any superior traits. This keeps me posted as to what to expect from different colonies the coming year.

I never loosen the cover until some warm day when all are busy flying, and then only examine to see that none are queenless. All having plenty of stores, I never have to move combs for this purpose. Just before fruit bloom I choose a good day and feed in the open, sometimes one day, sometimes three days. This feeding is not to supply stores, but to stimulate brood-rearing. Next I give every one an empty body of combs underneath, leaving the brood above where it will keep warm. Then I let the colonies alone until the dandelions are yielding well. At this time practically every colony will need more room. I give either a full-depth or shallow super, according to how many young bees are on the combs. Before the dandelions are over some are three stories high, and after the flow is over they need more room. This I give by removing the body that I put underneath and placing it on top, my object being to keep brood-rearing going all the time. I try to have all the bees possible in each hive ready for the clover. Oftimes I have to add a super of frames, as the young bees become so numerous that even the three stories don't give them enough clustering space.

As soon as I see the first blossom on white clover, every colony gets a thoro overhauling. The body where I find the queen is attended to first. The two outside combs are not moved. The frame on which is the queen is put in the center. The other spaces are filled with empty combs. Above this body is placed an excluder and above this a super containing the combs having the most sealed brood. Those having honey are placed in the third super on top. At the same time I clip all the queens and then wait for the clover to begin. If the flow starts slowly the bees' inclination is to

One of A. A. Clark's apiaries at LeMars, Ia. Looks like a good crop.

swarm. If I decide any are thinking of swarming, I give them a body of combs to relieve the crowded condition. As soon as they begin sealing honey, I give more room at once next to the brood-nest. Then as the flow continues, instead of opening the hives I lift them and thus estimate the amount of honey and whether another super is needed.

Bees should never be smoked when the flow is on, as the young bees that are wax workers will go down and in most cases stop work. This causes swarming, and stops storing considerably. I don't have 5 per cent swarming since using this method, and the photo shows how well I succeed. When running for comb honey I use an entirely different way. I notice that many beekeepers have trouble in getting bees to work in the comb-honey super. This never bothers me, for this reason: If a colony will only crowd the brood-nest full of honey, no matter how good the queen, presto, off goes her head, and another one is given. Here is where raising your own queens pays. Dr. Miller is one man that is also, I think, producing bees that get the most honey for his management.

I find that introducing new stock is detrimental in some cases. You have to try any new blood one season before getting the cross in your stock. If there proves to be an undesirable trait, it may sometimes take as much as five years to breed it out, and this is just an upset for all the work you have done for many years.

As shown in the picture my yield is pretty good. Note some of the hives have a guy wire running over the tops with stakes to hold them from being blown over. My total yield last year was 13,500 pounds of extracted and thirty-three 24-section cases. A. A. Clark.

LeMars, Ia.

* * *

LARGE HIVE with NO ADDED COST

How to Try Out Deep Hive with Present Standard Equipment

A method for those who wish to try a deep hive, a method which, I believe, has not been mentioned, is to use a 10-frame Jumbo body with 9 frames, 1½-inch spacing, in connection with a shallow super which is to be considered as a part of the hive the entire year—for a reserve supply of honey and not to be used for producing extracted honey, unless it may become necessary to remove from these shallow supers honey unfit for winter stores.

The following suggestions serve to show its advantages in many ways: Until further experimental work has been done along the line of large hives, some beekeepers may like to try this plan and still continue the use of standard fixtures. During the honey flow the shallow super should be on top of the brood-chamber to be filled with honey for winter stores. If in a buckwheat location, the shallow super could remain below the brood-chamber all summer, and then at the beginning of the buckwheat flow be placed on top of the brood-chamber to be filled for winter. Promptly at the end of the honey flow in the fall, the shallow super with its 25 or 30 pounds of honey should be placed below the deep hive. There will be at this time more or less honey in the deep combs—depending on the strain of bees and age of queen, as well as on the quality of combs (absence of sag and drone comb). The bees will move some or all of the honey above before cold weather. In far northern localities it may be advisable to give each colony 10 pounds of thick feed a little later, which will make a total of 50 to 60 pounds of winter stores.

Placing the shallow super of honey below the brood-chamber in the fall, and making it necessary for the bees to move the honey above, may seem an unwise move and exhausting to the bees' energy, but it has compensations very valuable to Northern beekeepers. This honey when placed above is put in the center of the brood-nest in cells rapidly being vacated by the hatching bees. Transference of the honey also causes the queen to continue laying somewhat longer; and, further, another **very important point** not to be overlooked, is that, owing to the shallow body being below the brood-chamber, the bees are offered an opportunity to form their winter cluster at a lower point than is possible in a single story deep hive, affording the bees, as is natural with them, a chance to place a larger percentage of their winter stores in thick combs directly above them. In the spring after protracted spells of low temperature, bees in tall box hives and in trees have been found alive, while to the beekeeper's sorrow many (too many) of his colonies were dead—with ''millions of honey'' either side of the cluster. Making larger hives either Jumbo or Langstroth style by adding additional combs to the sides is not going to help the bees **in the winter**, should there be no chance for them to break cluster and reach the stores in the outside combs.

At the proper time in the spring the shallow super can be placed above to catch any early flow and prevent the brood-chamber from being flooded with new honey. In mild climates the shallow super may remain above the brood-chamber the entire year.

In locations where there is a heavy short flow of white honey, comb honey may be produced by moving the hive a few feet at the right time, turning its entrance at an angle of about 45 or 90 degrees away from its former position and placing the shallow body on a bottom on the old stand. Then

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run the old queen into the shallow hive and transfer any supers to it. Also shake in front of it the bees from a few frames taken from the deep hive, giving this old hive at this time a queen-cell. Five or seven days later shake a large number of bees in front of the shallow hive, leaving just enough to care for the brood. At the end of the flow or shortly before place the shallow hive on top of the deep hive; or put it below if in a buckwheat location, to be later put above to catch some buckwheat honey. The chances are that there will be in the deep hive considerable honey which the bees will rush above and use in completing unfinished sections.

In moving colonies or a yard to a new location, how many beekeepers are equal to the job of loading and unloading heavy 11- or 13-frame Jumbo hives? And yet with this arrangement the bees can easily be confined to the brood-chamber if necessary and the shallow super moved as a separate unit. In fact, one man could do it.

Mahwah, N. J. John Vanden Berg.

* * *

IS SUPERSEDURE GENERAL?

May One Safely Trust Bees to Supersede Failing Queens?

The statement has been made that when bees are left to their own devices every queen is superseded before she dies. Now in my experience I have not found this true. Indifferent health for the last two years has unfortunately compelled me to leave my bees to their own devices as far as queen-rearing is concerned, but the bees have not attended to the matter properly. I find the bees will allow the queen to go on laying until her fertility is practically exhausted when she will lay both drone and worker eggs in worker-cells. At this stage the bees, if they have any sense at all, surely ought to start queen-cells. In a few exceptional cases they do so, but they generally allow the queen to go on until she lays nothing but drone eggs. Only last week I examined my different apiaries for the first time since last year. Some colonies had been destroyed by worms, some had laying workers, and about eight of them had old drone-laying queens. The last time honey was extracted was on the 27th of June, and all my colonies were then in good order and, no doubt, all had queens. My belief is that all worm-eaten colonies, as well as those with laying workers or drone-laying queens, had come to grief thru the very fact that the bees failed to supersede the queen before she completely failed.

In the West Indies the bees rear brood the whole year round. Queens never for a minute stop laying. If bees may be depended on to supersede failing queens, how is it that if bees in the West Indies are left to their own devices about 20 per cent of the colonies will die a natural death every year, even with the supers full of honey?

About 14 years ago when looking for larvæ for grafting purposes I found two nice queen-cells in the hive, one of which had just hatched out. As there was plenty of eggs and brood in all stages in the hive I was somewhat puzzled. I soon found the old queen busily laying. The young virgin was also found running about. As I could find nothing wrong with the old queen I removed the virgin and the cell from the hive and introduced them to a nucleus. To my surprise the bees never started any other supersedure cells; the old queen went on laying as usual and gave a good account of herself next season. This happened in the month of December when there is never any swarming in this place. What were these bees up to when building those cells? Were they trying to supersede or was it something else?

Bees are queer things, but I am not certain that beekeepers are any better. Was it not from Yankeeland that some time ago a beekeeping genius boldly announced that the best way to prevent swarming was to use no drawn combs in the supers but only sheets of foundation. Did not the same beekeeper also give accurate figures showing 30 per cent more honey produced from foundation than from drawn combs? When reading such assertions I feel like putting my two hands to my head and exclaiming like Clemenceau: ''Butsch, Butsch, hast thou still got thy head on top of thy shoulders?'' My experience in the West Indies in queen-cell building is as follows:

Bees as a rule will not start queen-cells as long as there is a living queen in the hive, whether she be a virgin, a laying queen, or a drone-laying queen. Bees will always start cells if the queen suddenly disappears, provided, of course, there are larvæ of suitable age present. During the honey season when the colonies are strong and prosperous their innate instinct of propagation inclines them to cell-building. At such times they will build cells irrespective of the presence of a laying queen. At such times queen-right colonies will readily accept grafted cells even without royal jelly. Failing queens at such times are invariably replaced. Every attempt is made by the bees to rear all the drones possible.

In our Island the honey season starts with the logwood in January and closes in the middle of September. During all this long time, although the brood-nest generally gets no attention from the beekeeper, a colony seldom fails thru the want of a queen. Drone-laying queens during this part of the year are practically unknown. But during the last four months of the year when

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little or no honey comes in, the bees seem to lose completely all instinct for propagation, mercilessly slaughtering the very drones they were raising a few months before. They will not build queen-cells even to replace a failing queen, altho they will rear worker brood quite normally tho in somewhat less quantity.

Our honey crops have been below normal for the last four years. The price fortunately was high. Some of our crop last year sold at over $1200 a ton.

St. Lucia, West Indies. A. Butsch.

A BOY'S SUCCESS WITH BEES

Last Summer He Cleared up $125.00 to Pay Him for His Summer's Fun

Towards the end of July in the summer of 1915 when I was eleven years old, a large swarm of bees settled on a branch about six feet from the ground and about the same distance from the corner of our dining porch. When I was about to enter the porch for lunch, my mother covered up my eyes and led me over to the corner where the bees were. I had not heard of the bees nor seen them before, and, of course, I had no idea what the trouble was. When I reached the corner she uncovered my eyes. I looked out, and to my great amazement saw the cluster of bees. It was the first that I had ever seen, and I was so excited that I could hardly eat my luncheon.

After lunch the gardener, who pretended to know something about bees, took a box and cut a hole at one end about an inch square. Then he nailed several sticks across the inside. He told me that bees never sting when they swarm, and made me hold the box under the swarm while he shook the limb. When the bees dropped in I almost unset the box, but he came to my rescue and turned it over on a board, which he had put on the ground under the tree.

The bees were soon busy in their new home, and I, not realizing that they would soon have that box full of comb, took my time about finding them a hive. I finally decided on a double-walled hive and purchased one about two weeks after the arrival of the swarm.

Then I got from the village a man who had once kept bees to come up and transfer them for me. All the neighbors, having heard about the bees, came over that afternoon and sat on the porch, where they were protected by the screens, while the man and I worked with the bees. When he pried up the top of the box, I expected to see a piece of comb about six inches square; instead of that the whole box was full of brood and honey. It was so late when we transferred them that I had to feed them for winter.

I studied a great deal about bees that winter, and early the next spring I examined them and found that they were still alive and stinging, in spite of the small amount of stores that I had left for them. Towards the end of June they cast a fairly large swarm, which my brother helped me catch. Then they began to cast after-swarms every few days. Not knowing what to do, or that there was anything to do, I kept catching and putting the after-swarms in the same hive until I had quite a colony, even stronger than the prime swarm. Altogether I got 100 sections from them that year, which sold for $25.

The next winter I gave a short talk on bees before the pupils of a large school in Chicago. The next summer, 1917, I tried clipping my queens; but I made a failure of controlling swarming in this way, for the queens either got lost or else I was not around when they swarmed. I increased to six colonies, but on account of queenlessness and laying workers I had to unite them and had but three then, with no surplus.

In 1918 I had lots of swarming, as I was unable to attend to them until the first week in June. In spite of the swarming I secured 100 pounds of comb honey and increased from three to seven.

Last winter I staid out of school to go to the meeting of the National Association in Chicago. I had Dr. Phillips and Prof. Wilson up for dinner. I met Dr. Miller, and had a fine time during those few days. In the spring I determined to produce extracted honey so as to do away with the swarming nuisance. I bought an extractor and loaded on the frames with foundation for I had no drawn combs. The bees never swarmed or thought of swarming, as far as I know. At the end of July, with the aid of my brother and sister, I extracted 300 pounds of honey in about three hours, which is not so bad for the first time. Then a month later I extracted 100 more pounds, which together with some comb honey amounted to 430 pounds, or about 70 pounds to the colony.

I sold the honey in large flint-glass jars, holding five and a half pounds, for $2.50 each. I had no trouble in selling them, and one of my customers even went so far as to take six jars. The value of the honey was $200.00. The cost of supplies and the extractor for the summer was $75.00, which makes $125.00 clear gain for my summer's fun. Howard Fisher.

Hubbard Woods, Ill.

* * *

"Beekeeping for Beginners" is the title of a Texas Agricultural Experiment Station bulletin, No. 255, written by Gleanings' regular correspondent, H. B. Parks. This excellent bulletin contains much valuable information in a small space. It is well illustrated and the advice is given in clear, simple fashion. The bulletin would be of interest to any beginner anywhere.

SIFTINGS

J. E. Crane

The weather this year has been unusually favorable during dandelion bloom, warm with almost continuous sunshine, and good colonies have stored from this source 20 to 30 pounds in addition to that used for brood-rearing.

* * *

Very interesting is that article by S. B. Fracker, page 334, June Gleanings, on Foul Brood Control, but I fear not wholly practical here in New England where we have extensive forests in which, in spite of us, disease may exist. Fortunately, these wild colonies usually all die after a time; and, if the apiaries are kept clean, we have our region clear of American foul brood. I do not at present know of an apiary or a colony in our State where it exists.

* * *

I have been prejudiced against Hoffman frames, which as usually met with in the hands of back-yard beekeepers are a most decided nuisance; but last week I went thru the apiaries of a first-class beekeeper, and was surprised to see how easily a hive could be opened and the frames handled. One thing I have noticed about these frames is that the combs in them are straighter and of more even thickness than in other frames. I have thought this is the result of the accrate spacing.

* * *

Miss Iona Fowls, on page 358, gives good rules for preventing and stopping robbing. Sometime ago I was inspecting a yard of bees where there was some foul brood, and robbing was most undesirable. Time was valuable if I was to check it. I moved back about four feet the hive which the robbers were entering and put in its place an empty hive which happened to be nearby; and I could not help but be amused at the chagrin and disappointment of those robbers at finding the honey all gone and only an empty hive in its place.

* * *

Most timely is the advice on page 330 to plan now to have combs of honey on hand next fall for all fall feeding required. Not only is it timely, but it is also good. I am slowly coming to the conclusion that a pound of clover honey in the hive is of more value than a pound of sugar fed to a colony, altho the pound of sugar will make nearly a pound and a quarter of heavy syrup. As I live and learn, I find it a little difficult to be consistent. How the years take the conceit out of us!

* * *

I was sorry to read on page 331 the rather unfavorable report on those pretty aluminum combs. While it has seemed doubtful whether they would prove of much value in our cold New England climate, I had hoped they might prove a blessing to beekeepers in the warmer sections of our country. The ingenuity displayed in getting them up and the enterprise in manufacturing them are certainly worthy of commendation. Doubtless the good Lord knew the best material with which to construct combs when he taught the bee to secrete wax, and when man attempts to improve on this methods he is apt to have a rather hard problem to solve.

* * *

Our thanks are due A. I. Root for the full account in June Gleanings, he gives us in his quotations from various sources concerning the new annual sweet clover. I had supposed it was simply a sport and of little value, but evidently it looms up as a most valuable acqusition as a farm crop, to say nothing of its value as a new source of honey. If, as stated, it comes into bloom in from 2½ to 3½ months from sowing, it would give our bees something to work on during the latter part of August and September when they are usually idle.

* * *

In the editorial on page 329, the reason given for believing that the southeast section of our country is most promising for extensive beekeeping is that a large number of the farmers keep bees in the old slipshod ways. Now, we who make it our business to keep bees often want to know how to select a good location. I believe there is no surer way of telling a good range for bees than by noting the number of old-style beekeepers in any given neighborhood. If it pays to keep bees at all in the old way, it is pretty sure to pay largely to keep them in a thoroly scientific way.

* * *

I have immensely enjoyed reading Mrs. Puerden's account of her trip to California and back. When she calls it a country of "infinite variety and beauty" she tells the truth; but I have a feeling that, if the other side is left out, many will get a wrong impression and think that it is only a place of "infinite variety and beauty."

* * *

During the height of dandelion bloom this year, combs of honey could be left out in the yard for hours without the slightest attempt at robbing.

[Say, Mr. Crane, a recent visitor to the scene of your busy bee activities tells us that you feel that feeding and feeds for winter ought to be emphasized, preached, and printed more than they are—fully as much as protection and packing. Won't you give our readers your full views about this sometime before fall?—Editor.]

MORE ABOUT LUTHER BURBANK

Stancy Puerden

OBEDIENCE is a pleasure—sometimes—when it coincides with one's inclinations. A number of the readers of Gleanings have asked me to tell more about Luther Burbank and his achievements, something which I am glad to attempt; but please remember that a two-page article about a man who has given a lifetime of hard work, 10 to 14 hours a day, to improving plant life, can touch on just a few points which happen especially to interest the garden lover and Luther Burbank admirer who writes this.

IT is humiliating to have to correct a mistake in the May article, where I said Mr. Burbank showed us a wonderful hybrid walnut tree, four years old. Let me quote from a letter written by Mr. Burbank to Mr. A. I. Root: "In regard to the walnut tree: This 'Paradox,' which your daughter saw was just nine years old. It is fifteen inches in diameter all the way up to twelve feet, where it branches. This particular strain of the 'Paradox' bears nuts rarely, but the growth of the new wood is about the thickness of a man's hand all around the tree annually."

In a letter written to me the same day he said, "Your article was in all respects correct except for this slight misstatement."

It is very kind for Mr Burbank to call it a "slight misstatement" when I cut his figure in two and then dropped half a year, especially as I happen to know that he has suffered very much in the past from exaggerated statements. To be perfectly fair I may as well confess that Mr. Burbank did not know that I intended to write an article about my visit, nor, as far as I know, was he aware that I am in the habit of writing.

The way the mistake happened was this: We saw the hybrid walnut tree, which Mr. Burbank told us was nine years old, and a sequoia (giant redwood) four years old, and evidently I unintentionally reversed the figures. I should have submitted the article to Mr. Burbank before turning it over to the printers, but California is a very long way from Ohio, and, as usual, before the article was finished the editor was growing impatient for my copy.

THESE swift-growing walnut trees are among the most fascinating creations of Mr. Burbank. Years ago he began crossing English walnuts with the native California black walnut, raising seedlings, selecting the fastest growing, grafting, and repeating the process until after many years he had seedlings which approached his ideal. He selected half a dozen of these, set them out in the hard earth in the street in front of his home, where they would receive no cultivation and no irrigation in times of drouth, and left them to themselves. In 14 years, in 1905, these trees had become nearly 80 feet in height, their branch-spread was 75 feet, their trunks were fully two feet in diameter at the height of a man's head, and not much less than that at the point of the first branch, some 12 to 15 feet above the ground.

Just across the street was another row of trees, English walnuts. In the 14 years the new walnut trees had grown six times as much as the older trees had grown in 30 years. All of Santa Rosa was interested in the wonderful, swift-growing walnuts.

Practical lumbermen will tell you that fast-growing trees are usually of coarse, soft grain, not suitable for fine finishing. Let me quote again from Mr. Burbank's letter in regard to this: "The timber of this walnut is harder than any other walnut by actual test by the piano men of Chicago and New York. In fact, it is so hard that it cannot be planed but has to be sawed and then smoothed on a sand belt. This is very remarkable for such a rapid-growing tree." In fineness of grain and beauty the wood is much like mahogany.

Those trees in the street had to be sacrificed as Mr. Burbank said, "They were growing so rapidly that there would soon be no street left."

Let me make one more quotation from Mr. Burbank's letter to me: "I hope to be able to send you a fine 'Royal' and 'Paradox' tree next fall." I don't suppose I ever read a single sentence which filled my heart with such delight as that one. I am sure I shall want to sit up nights to guard them and watch them grow.

THERE is so much more of interest that could be told of the walnut trees and of the wonderful chestnuts which bear at 18 months; but I must pass on to the fruit trees, no less wonderful and interesting and perhaps still more valuable to the world. You who have Mr. Burbank's 1920 catalogs have doubtless read this quotation: "Before Nov. 15 there had been grown and were shipped out of the State of California this season 1,192,256 crates of plums and cherries alone of varieties which were created on my own grounds, besides one large shipping firm which could not make a variety report. Some 7,000,000 bushels of Burbank potatoes were also grown here this season, and unnumbered carloads of rhubarb, prunes, and other horticultural products can be added for good measure."

One entire town in California has been built up very largely upon one or two varieties of his plums. Several varieties are being extensively cultivated in the island of

Borneo, and the late Cecil Rhodes ordered all Mr. Burbank's then new varieties of fruits for his extensive fruit ranch at Cape Town. Several years afterward a consignment of plums which grew from those cuttings was shipped 18,000 miles by steamer and rail from Cape Town to San Francisco, arriving in prime condition. His fruits have also been introduced into various parts of Europe with great success.

In the breeding of fruit trees there were so many things to work for; for instance, size, flavor, productiveness, early bearing and early ripening, juiciness, sweetness, good-keeping qualities for shipping purposes, hardiness, long life for the trees—I don't suppose I can name them all. Like all great men, Mr. Burbank always has the vision of what he is trying to attain, a sort of mental pattern of what he wants. In addition to all the desirable qualities I have named he has been working to produce pitless prunes and plums. After 12 years of unremitting, painstaking, expensive work with as many as 5000 little trees in training at one time, the first pitless prune appeared. He is now working with many varieties of both prunes and plums which have no stone, but in most of them remains a tiny kernel which adds a rich, almond flavor to the fruit.

I believe none of these have yet been put upon the market, but it is said to be only a question of time before Mr. Burbank will breed the pit out of all his varieties of plums, prunes, and cherries. May he enjoy many years of health for his work.

Maybe some of you, like myself, have wondered what is the difference between a plum and a prune. Mr. Burbank gives this definition, "Any plum which will dry in the sun without spoiling is a prune." In other words a very sweet plum is a prune, because it is the sugar content which enables them to preserve themselves like raisins.

DEAR me, there is so very much more that could be said about the many varieties of plums and prunes which Mr. Burbank has introduced, but I already foresee my troubles when I begin to try to fit this article to my space. I always did detest cutting and fitting. However, I am going to mention a plum with the flavor of a Bartlett pear. A great fruit man, on being blindfolded and given a taste of this plum said, "It is the finest Bartlett pear I ever tasted."

One thing which delights me about Mr. Burbank is his way of doing things which scientific men have long declared to be impossible. He might be said to cut scientific red tape just as such men as Herbert Hoover cut official red tape. As an illustration there is his plumcot, produced by the union of plums and apricots, not a new and distinct variety of an already existing fruit, but a new fruit given to the world.

Other creations of new species are the primus-berry, a union of the raspberry and blackberry, and the phenomenal berry, created from the California dewberry and the Cuthbert raspberry.

MAYBE someone is wondering why I have not yet mentioned flowers. I am rather surprised at myself, to tell the truth, but you see that necessary correction started me on trees and then fruits seemed to follow logically.

Fourteen years ago this summer, on my first visit to California, I was charmed by bowls of wonderful daisies which appeared on the tables of a certain hotel in Santa Barbara. I had always loved the common field daisies in spite of a farm-bred husband who told me I would not love them if I had ever been a small boy and had to fight them as persistent weeds. These daisies in Santa Barbara were enormous, of the purest white with a gold center, full petaled and symmetrical. Combined with the orange gold of the graceful California poppy they formed a beautiful contrast. We were told that the daisy was the Shasta and a Burbank creation. I came home, ordered seed, raised plants, and for years our garden was beautified by the great daisies. Now I find that it took Mr. Burbank eight years to perfect the Shasta daisy. It is a triumph indeed, for it will flourish in all soils and all climates but will not self-sow, has flowers three to six inches in diameter on long, strong stems, and will keep fresh in water from ten days to two weeks. Since this time Mr. Burbank has added a double daisy to this which makes it a rival of the chrysanthemum, as the daisy will bloom all summer. Another, newer still, is a fringed daisy.

Just to mention a few more of his flower triumphs, Mr. Burbank has added variety to the golden California poppy by producing it in crimson and other colors; he has taught the gladiolus to bloom around the entire stem instead of the old way, on one side; he has driven the disagreeable odor from a dahlia and given it the fragrance of a magnolia blossom; he has increased the size of a poppy until it measures ten inches in diameter; has bred an amaryllis to nearly a foot across. He has produced a calla ten to twelve inches in breadth on a six-foot stem, and then has bred others down to tiny things less than two inches in diameter.

WILL you pardon me if I am personal and just a bit boastful for a minute? I am quite successful with delphiniums (hardy larkspurs), or perhaps it is merely that our heavy clay soil is especially adapted to them. At any rate, in June, I always have a large bed of them, great, strong plants, covered with stately spikes of bloom. They are plants which I have raised myself, and honestly, you never saw finer larkspurs. When they are in full bloom the bed is like a mass of blue flame, exquisite shades of blue. They have only

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Beekeeping as a Side Line

Grace Allen

SUMMER days are certainly golden ones for the sideline beekeeper. For the professional, too, perhaps you will add. A different kind of gold, dear reader, a different kind of gold. The reason summer seems to me so especially a wonder season for the sideliner is that it brings him so much downright joy, most of it the leisurely high joy of the spirit, that has nothing at all to do with profits and only an incidental connection with crops. To the professional honey-producer, summer brings the ''busy season'' that most business ventures are heir to, be they agricultural or otherwise. There is a constant sense of rush and bustle and getting things done, necessary, vital things upon the doing of which his very income depends. It means steady, old-fashioned hard work and lots of it.

But to the sideliner, the backlotter who has perhaps only half a dozen to a score of hives, the springtime hangs out the latchstring to the mysteries of the hive, and summer opens wide the door. These are the days when, over all the land, there are men a little tired with the burdens of office or factory, who are growing eager-eyed and refreshed among the quiet ancient marvels of the apiary; when dream-hearted women, weary of egg beater and dustcloth and darning needle, lean rapturously over some fragrant dusky hive and lose themselves in wonder and content.

The delights of thus keeping bees as a sideline are innumerable. Added to the thrill and splendor of the swarm almost certain to issue in either May or June, are countless other delights scarcely less exciting. A queen never ceases to send a thrill thru your true bee-lover. I remember one day when Mr. Allen and I were working together; he had just set off the last super and was inserting a tool under the excluder, when I squealed, ''There's the queen!''

''Well, what in thunder is she doing there?'' he demanded, as we watched her an instant on top of the excluder that was supposed to be keeping her below. I didn't know, but having raised brood twice, thought likely I'd raised the queen, too, the second time. Deciding to clip her at that opportune moment, I tried to pick her up. No indeed, she allowed no such liberties. A swift hop or two, and she took to wing. We waited breathlessly for her return. Not seeing her, we went on down into the brood-chamber, looking for—whatever we were looking for, swarming symptoms, I believe. ''Ah, here's the runaway back!'' Mr. Allen exclaimed presently. Again I reached for her, there on the comb. This time she took almost instant flight. We were much distressed, fearing she might not return the second time. And behold, just then, across another comb another queen came walking, quiet, sedate, dignified, one wing clipped, ''Oh, that other is no laying queen!'' we shouted in the glee of sudden understanding. ''It's a gay, flighty young thing that must have emerged in the upper story from that first brood raised.''

''From some cell you failed to cut last week?'' came a suggestion from across the hive. ''From some cell I failed to cut and am glad of it!'' I admitted happily. In such slender, unlooked-for happenings your true backlotter finds almost unlimited joy, even tho they result occasionally from his own apiarian sins.

Greater skill is always his watchword, however, and little by little he progresses in his methods, probably trying in turn every system described in the journals. Like all the rest of them, we have clipped queens and we have not; we have let them cast the first swarm; we have cut cells every week to prevent them; we have used the Alexander method of swarm control and the Fowls' adaptation of it; we have given them the run of a story and a half and two stories and seen them swarm anyhow. This particular summer, feeling the necessity of holding the force together at almost any cost of mere labor, we kept cells cut out again, examining the brood-chamber comb by comb during May, then compromising in June on the method we undignify with the title, the **tipsy** method, tipping hives up, you know, to look for queen-cells on the bottom. It won't locate them every single time, but it comes pretty close to it—close enough, I'm thinking. Moreover, if the brood-chamber consists of two bodies, then tipping the upper one alone will suffice time after time. If there are no cups along the lower edges of those upper brood combs, I don't believe there's one chance in one hundred that they are starting cells below — provided, of course, the queen is occupying the upper story. Sometimes she isn't; it is given over entirely to honey. Even then they will sometimes choose the lower edges of those upper combs to build queen-cells on. But even if I find rows of cups there, if there are no eggs in them, I don't bother to tip up the lower chamber. And I recommend this tipsy system to any sideliners who may more or less have discarded their old leisurely ways in order to keep as many bees as they can manage in the time at their disposal. If you are practicing cell-cutting at all, it saves lots of time.

The reason we were so very keen to prevent swarming this year, that we were willing to look thru or under each brood-chamber once a week, is because such a heavy clover bloom broke over our fields, following our bad weather and starvation period in April, that we felt we could not afford to lose even one swarm. And as we belong to that smaller class of sideliners with most of their bees away from home, saving swarms looked difficult.

It has worked out a bit unexpectedly, however. The sideline out-yard has so many lovely features that the habit of coming out here has grown upon me till now I am spending more time here than at home! There's the getting to the yard—coming out in the morning, before the freshness is gone, by roads that lead under cool green trees, along fields white with clover, where stone fences and gate posts are hung with clustering roses, where the locust and honeysuckle scents of May give way to the sweetness of rose and magnolia in June, and where one lifts up one's eyes to the everlasting hills and thanks God for them. Not one hive have I opened today, yet here it is three o'clock, and I have been out at the country yard ever since nine this morning. Let a swarm come out now, if it will! At this moment I am sitting on a hive seat in the honey house, with my little typewriter on a chair. Thru the window streams the June sunshine and the hum of the bees. There's a row of low hills circling the distant south and west—and orchards, some of them with alsike for a cover crop, in bloom now for the second time. And birds—red birds like a flame, blue birds like a scrap of sky, mocking birds like a fount of song, brown thrush, darting wrens, bobwhites across the fields. Perhaps it is a little too easy just to lie back against all this beauty, like a swimmer on the water, and let its sustaining power hold you, without effort of your own. And isn't that one of the sideline privileges, even tho claimed in an outyard? Need we always rush around and be forever doing things? I wish the world might learn again the flavor of leisure. Out here there are only the quiet-filling hours with their gifts of silence and birdsong and humming of bees. One forgets committee meetings and organizations and that one is to preside over something day after tomorrow (the joy of being away from a telephone!). One takes one's rest in a hammock swung across the honey house, and slips off to sleep, things are crooning so. And waking, one tiptoes to the window and surprises a lizard sporting around the nearest hive. I had forgotten there were such things as lizards. I really didn't know we had them in Tennessee. I always think of them as in Florida, after the visitors have gone back north, basking in the sun on the sand, catching flies. They do catch flies, don't they? Do they catch bees too? I did not see this one do anything so inconsiderate today, tho it did glide around and under the row of hives where this year's fine nuclei are ranged.

More and more I like these shallow supers. Perhaps if our crops averaged hundreds of pounds, that would make a difference. The larger unit, both in comb and super, might be more convenient. But for here, we both like the shallows. By the time they are full, they are quite heavy enough, too, thank you. As part of the brood-chamber they work admirably, tho it pays to get the little combs drawn straight and solid to the bottom-bar. Then, with good full-depth combs, the queen seems not to balk at all at going from one to the other. After the flow is well on, however, they often crowd her down out of the shallow, putting in honey as fast as the brood emerges. When I find she has abandoned the upper story, I usually raise it above the excluder, treating it like any other super, in deference to the prevalent idea that the bees don't store as enthusiastically when there is considerable honey immediately over the brood. But if the queen continues to occupy both chambers, she is allowed the run of them thruout the flow.

What an important thing the tiering up of the supers becomes! Nearly every beekeeper has had the experience of putting on new ones rapidly—wisely, he has supposed—keeping well ahead of storage needs, when all his plans would be spoiled by a turn of the weather. I think it was in 1918 that the end of May saw supers piled rather high here; then June was all rain, and many beekeepers were left with unsealed honey spread over several supers, foundation gnawed down, and general disappointment. More conservative ones, who never give new supers till the bees begin to seal those on the hive, came out better. Yet had June fulfilled the promises of May, they would have secured smaller crops than their more optimistic brothers. Right now it is interesting to notice the same difference between different yards. May June live up to May!

At last we have five "Long Idea" hives started. They came too late to try out last year, and this year will scarcely be a test.

You know the painless, tidy, gradual method of transferring that is so popular now? You fit a nice new hive over the old one, close the lower entrance, and, because bees object most seriously to a brood-chamber below the entrance, they will promptly come up. It does sound so good, we wanted to try it. We have dodged transferring up to now. Well, among Mr. Allen's colonies (we have a merry and elastic division of hives into **yours** and **mine** and **ours**) is now a keg of bees he paid two dollars for this spring, to transfer them by this polite and painless and alluring system. He now has his third super on, but the queen, unless indeed she has swarmed out, still rears her young in the rotund recesses of the keg. "Why should I worry?" Mr. Allen laughs down thru his honey to the queen below. "You've paid for yourselves ten times over. And when I get good and ready I'll transfer you anyhow by the old-fashioned ax-and-knife method."

FROM NORTH, EAST, WEST AND SOUTH

In Southern California.—The California Honey Producers' Co-operative Exchange has secured the services of C. E. Millspaugh as general manager, who is one of the most experienced honey men in the West. He has for 15 or 20 years been dealing in honey and other California products, and brings to the Exchange a ripe experience along these lines. For several years past he has been with The Los Angeles Honey Co., (Hamilton and Menderson), and previous to that time he was in business for himself.

Beekeepers hereabouts have been exceptionally busy for months and especially those who practice migratory beekeeping. All of those who move from the oranges to the sages have been working overtime getting their apiaries moved. Help is hard to get and hard to keep, but one finds many men interested in the business, who always come and who want to work and get what experience they can, hoping eventually to get into the game for themselves. Most of those, who ship in from other States, have shipped one or two carloads to their northern locations, but some have already moved out all of their bees. One large shipper, whom I saw loading, had a refrigerator car already iced. It was a warm day, and the bees were making considerable noise. He said, "Oh, you little fellows, you will get cooled off when the car starts and this ice begins to get in its work." This man shipped in refrigerator cars last year, and says that he hardly lost a bee. To get the orange honey and make increase ready to ship north is the great problem. Your correspondent believes that it can be done profitably, and that it will continue to grow as a business. The high prices of supplies does not interfere with some of these shippers having the very best of everything. It certainly looks fine to see a carload of 500 ten-frame Langstroth hives, all exactly alike and fitted in like peas in a pod.

On the night of May 1, unknown parties entered the apiary of F. A. Alexander near Perris, Riverside County, and took away with them 20 colonies of bees together with a capping-melter, a gasoline stove, supers, foundation, etc. Many beekeepers report losses of from one to seven or eight colonies. It may be a well-organized band of robbers or only someone wanting to get a start in the business. Stealing is getting to be a menace to the keeping of out-apiaries. At a recent meeting of the Riverside County Beekeepers' Club, a committee was appointed to devise ways and means whereby a plan can be worked out to apprehend these vandals. A system of marking all hives, frames, and equipment was suggested. It was also suggested that an ordinance be framed making it unlawful for anyone to move bees without first having a permit from the county inspector. Such permit should give the name of the owner, the number of colonies to be moved, and the location to be moved to. A uniform law for the State embodying these points might help in catching the offenders.

Extracting the honey at the apiary and bringing it to the home place the same day is being practised by several beekeepers this year. I run it into a small tank and then into five-gallon cans. These are brought home in the evening and the honey emptied into tanks, where it remains for ten days or two weeks to clarify properly. At the end of this time, it is put into cans ready for the warehouse or shipment. One beekeeper has a one-ton tank on his truck. His pump from the power extractor puts the honey into the tank. When he arrives home a pump forces it from this tank to one in the yard. This avoids all handling. Work can be made easy in a way, if we only know how to go about it.

The decoy-hive fellows have been very busy this year, and one can see an old box or hive tucked away in a tree almost anywhere. Considering the amount of swarming reported, there have not been as many catches in this way as one would suppose. A large per cent of swarms caught have been found hanging to trees and bushes. Are swarms more inclined to enter old hives or boxes some years than others? One year I put out about 30 decoys and caught 25 swarms in a short time. This year, with about the same number of decoys, only five or six swarms have been caught. It is certainly a good idea to have all hives no longer considered in condition to be used in the apiary, placed around in trees and out-of-the-way places. A colony caught is cheaper than a colony bought.

There certainly has been a "come-back" to the black sage this year in southern California and especially in Riverside County. The writer does not hesitate in saying that the best flow experienced in the past 25 years has been on for a few weeks. Colonies strong in bees and of the right age for field work have averaged four pounds per day over a period of 15 days or from one extracting to another. The honey is water white and of a very heavy body. The white sage is just beginning to yield well in most sections of southern California. The purple sage is also yielding well. The wild buckwheat is looking fine now and is secreting a little nectar in the earlier localities. It should produce abundantly for some weeks yet.

Corona, Calif. L. L. Andrews.

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In Iowa. From the correspondence which is now being received concerning foul-brood inspection, it is very evident that among the beekeepers there is general ignorance of the law relative to this matter. Every beekeeper interested in this work should acquaint himself with the provisions of the law. If inspection is considered necessary an application should be made for an "Inspection Request Blank," which will be furnished by the State Apiarist. A copy of the law is contained in the State Apiarist's report, which can be secured upon request.

At its last meeting, the State Beekeepers' Association named a State Fair committee of which Bert A. Brown of S. W. 1st and Indianola Ave., Des Moines, is chairman. This committee will provide for the interests of the beekeepers of the State at the fair this year. Those who are interested in the rules for exhibitors and the premium list should write to Mr. Brown. It is expected that more beekeepers than ever before will avail themselves of the opportunity to compete for these prizes. Plans should be made now to enter prize honey.

The premium list of the Mid-West Horticultural Exposition this year will contain, for the first time, prizes for honey. This show has grown rapidly and now attracts horticultural exhibitors from many States, and it is expected that the same will be true of honey-exhibitors. The prizes are exceedingly liberal and will certainly attract entries from many sections of this and other States. The committee in charge has been named as follows: F. B. Paddock, Ames; Geo. D. Nelson, Osage; J. H. Paarmann, Davenport; E. M. Brown, Iowa City; J. H. Allison, Council Bluffs. The Exposition will be held at Council Bluffs during November.

The Fair-price committee, named at the last meeting of the State Association has started its work. Letters have been written to the larger producers, and the compiled opinion on June 1 was that the honey price would open for the 1920 crop but little if any higher than the prevailing price for the 1919 crop. This committee will continue to solicit the opinion of representative beekeepers in all sections of the State and will try to become familiar with the general honey situation of the United States. Reports will be issued by the secretary in the Beekeepers' Bulletin. This effort is aimed to reduce the needless amount of underselling, which is far too common.

In spite of the seemingly late season, white clover came into bloom in this locality about June 5. The bees immediately began to work on this plant heavily, and by June 10 the effect of this bloom was being felt in the hives. Two or three days later yellow sweet clover came into bloom, and the bees began working on it immediately. Prospects seem to indicate a very good honey flow from the clovers. White clover is well distributed, as is the sweet clover. There will also be a fairly good flow from basswood in this locality. F. B. Paddock.

Ames, Ia.

In North Carolina.—Generally speaking the North Carolina beekeepers are experiencing one of the best seasons in a number of years, but at the same time the yield is not nearly so abundant as indications gave promise of early in the season. Two distinct "spells" of cold cloudy weather, that kept the bees off the pasturage much of each day, had the effect of considerably curtailing what would otherwise have been a really bumper crop of honey. The quality of the honey this season is ranging much higher than the average, the gums, gallberry, and the like giving especially large yields of beautiful clear honey, in eastern Carolina sections where there are especially dependable sources of honey. Reports as to the western sourwood flow have not come in yet, but it is believed that this also will be a good crop this year. In fact, Federal and State Apiculturalist C. L. Sams, who has traveled lately into every section of the State and mingled with the beekeepers, expressed the opinion that this has been a good season for beekeepers all thru the State.

Section of Kelly Beeyard, Lower Cape Fear Apiaries, Wilmington, N. C., illustrating heavy honey yield. These bees were transferred from "gums" to standard hives only two weeks before this picture was taken, the colonies then having only three or four frames of brood and foundation. The top hive body supers were all full of new honey and the work of filling the lower supers far advanced, with some completed sections already removed from numbers of the hives.

Some indication of the rapidity with which bees gathered honey in the early stages of the gum, holly, and gallberry flow in southeastern Carolina is given in a "snapshot" of a section of the Kelly beeyard of the Lower Cape Fear apiaries, taken just two weeks after the bees were transferred from gums to standard hives when they were given just three or four frames of best brood from the gums and the rest of the frames containing only foundation.

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In these hives shown herewith the top hive-body supers are chock-full of honey, and the bees are far advanced in filling the lower supers—many of them section supers from which some completed sections had already been taken when the picture was made. The bees, as told in the last issue of Gleanings, were driven during the week of April 16, and this picture was made just two weeks later.

In eastern Carolina beekeepers will begin extracting late in June, and the work will go right on thru July and, in some localities, probably well into August. W. J. Martin.

Wilmington, N. C.

* * *

In Ontario.— Since sending in copy for June, we have had a very dry period in most parts of Ontario, and the result is that alsike has been rushed on at least 10 days sooner than it should open, taking the lateness of the spring into consideration. Altho opening quite fast the plants are short and stunted; and, unless copious rains come soon, alsike prospects are anything but bright, whether for honey or seed purposes. Eastern Ontario, especially that part of the country adjacent to Ottawa, has had soaking rains, and I suppose the clover there will be correspondingly better as compared with the drouthy areas farther west. As reports come in respecting winter and spring conditions of the bees in Ontario, we learn with regret that the loss of colonies has been very great. East from Toronto where the crop was better last year, wintering appears to have been above the average, especially where cellar wintering is largely practiced, and this applies to most of the eastern part of Ontario. But most of the counties in western Ontario have had abnormally heavy losses, which are not confined to small inexperienced beekeepers. In many cases, a dearth of pollen appears to have been the cause of heavy loss; as, with no natural pollen in the hives in April and with no chance of the bees getting fresh pollen owing to inclement weather, of course brood-rearing stopped and the death rate exceeded the birth rate, with the enevitable result that the bees dwindled to mere nuclei or perished outright. In one large chain of apiaries that I examined, the foregoing causes brought about the heavy loss, as the bees wintered perfectly in every way, and then dwindled out in April and early May. In other sections of the country, granulated natural stores caused disaster in hundreds of colonies; and, taking all reports received and averaging the same, I do not believe that 30 per cent loss will cover the amount of colonies dead in counties west of Toronto.

Sugar keeps soaring in price, altho not at present nearly so high as in the United States. What honey will do in sympathy with these high sugar prices remains to be seen, but I do not think it will go to the high figures named by some parties; in fact, I do not think it would be the best thing for the industry for the honey to go so high as to be beyond the reach of the masses of the people. Some contracting has been already done by a few beekeepers, but the most of them, no doubt, expect much higher prices than those prevailing at present and will take no chances on selling now.

Present prospects are for a light acreage of buckwheat in our immediate localities; but is is to be hoped that enough will be grown to help out in the sugar bill, for all signs point to scarce and dear sugar this fall.

Regarding that colony having the two aluminum combs, I would say that the queen continued to avoid using them for brood-rearing until all four waxen combs on opposite side of the hive were literally crammed with brood in all stages. On May 19 I shifted the aluminum comb that was next to the fourth waxen comb and placed it outside of the hive, putting a waxen comb next to the one full of brood. There was not an egg in the aluminum comb at that date, altho considerable fresh pollen and some honey had been placed in it. The changing of combs was made at 4 p. m. on May 19; and the next day at the same hour, just 24 hours later, I examined the hive and found the newly placed waxen comb with hundreds of eggs in it. Altho crowded for, at least, 10 days, with the aluminum comb next to the brood-nest not an egg would the queen place in the cells, but inside of 24 hours the waxen comb was used freely. And yet last summer this same queen used the two aluminum combs freely for brood-rearing during hot weather. But I do not consider this a fair test; and, if possible, I want to get enough combs of the metal variety this summer to have a colony on them for wintering, and also to see how they compare with other colonies on waxen combs in regard to brood-rearing in April and May when we have such cool weather. But, candidly, I feel at present like advising anyone to go slow in buying large quantities of these combs for northern use. It is better to wait a short time until the combs are more fully tested. Needless to say, I have no axe to grind in the matter. If the wish was father to the thought, certainly I would be reporting in glowing terms how successful this new invention was turning out.

Markham, Ont. J. L. Byer.

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In Texas.— In spite of adverse weather and late spring there is thus far a good honey crop in Texas. In the chaparral district extracting began by the first of May, and averages of 70 to 125

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pounds surplus were common. This honey is principally huajilla (wahea); it is almost water white and of the finest quality. Overlapping the huajilla flow came the horsemint flow, and now white brush and mesquite promise a prolongation of honey production. Reports from the State indicate that the crop will be normal or above in all sections save the post oak district. This is located in East Central Texas and divides the black prairie lands from the pine and swamp eastward. This section has a light-colored sandy soil and a flora dominated by oaks. It is a poor bee-country excepting during years of heavy rainfall. Individual reports of no honey flow come from other districts, but these are overbalanced by reports of heavy flows in a near locality. Commercial beekeepers estimate a winter loss of between three and eight per cent. The loss in box gums was very severe. The sellers of combless packages are still delivering bees. They have shipped more packages than in any previous year.

The first report has come in relative to bees dying from the effect of arsenicals used on the cotton fields. A great many of such complaints are expected, as very large acreages of cotton will be dusted this year. In order that this subject may be studied, any beekeeper who has losses of this kind is requested to send samples of dead bees, dead brood, and honey from the dead colonies to the office of the State Entomologist, College Station. This is a problem about which little is known and both the entomologists, representing the cotton interests and beekeepers, are very desirous that beekeepers comply with this request.

An all-day picnic and exhibit of the products of the Baby Beef, Pig, and other farm clubs was held at Dilley in Frio County. As this is about the center of the Southwest honey country, many beekeepers were present. Representatives of the Texas Honey Producers' Association and several honey-buying firms were present. This brought about personal contact between buyers and sellers, and very satisfactory results relative to marketing honey were attained.

Shipping live bees requires an exact knowledge of the work and the most careful packing. Almost all complaints from buyers and nearly all of the hostility of the express companies come from poor packing. This is well illustrated by two shipments of bees received here this spring. One hive, that had been on the road 36 hours, arrived with most of the live bees on the outside. Inside was a mass of broken comb and dead bees. The other was on the road eight days. When opened, everything was in good shape, and the cleaning-up did not bring out over a half pint of dead bees. A seller of combless packages has shipped 25,000 pounds of bees, with the loss of 100 pounds; another lost 600 pounds out of a 1,000-pound shipment. If you ship bees, know how and use only the best cages and hives.

So much is being said about the honey flows from oaks in Texas that I feel I must make this statement, altho I wish to delay a full report until later. Some of the material collected by bees in the spring from oak is a secretion from scale insects, but a larger proportion of it is a plant secretion coming from mechanical injury to the buds, new leaves, and green shoots. Probably some of this comes from punctures made by insects of the plant bug variety. The big honey flow from live oak, which occurs in the fall of the year, comes from a gall. This is a distinct plant growth. The galls are about three-fourths of an inch in diameter and are attached to the twigs of the tree; the nectar is found in drops on the surface. This gall is caused by the sting of a small wasplike insect. The young of the insect lives and matures with this plant growth, but the young insect does not secrete or excrete the nectar; this is the product of the malformed portion of the plant.

The work of foul-brood inspection and eradication is making good headway. In addition to the county inspectors, the chief inspector and four full-time deputies are now at work. Successful clean-up campaigns have been conducted in localities where several years of inspection have shown no, or little, decrease in the disease. Because of the justly rigid quarantine laws of other States, calls from shippers of bees have been so numerous that extra help was necessary. Those interested in bees are cooperating in every way. Several of the large dealers in bee fixtures, who also handle live bees and honey, have of their own accord separated the places of business so that no bees, honey, or old fixtures are handled near the new fixtures or cans. We are hoping that no one gets patriotic and attempts to distribute second-hand bee-fixtures here.

College Station, Tex. H. B. Parks.

* * *

In Oregon. If it were not for the sudden epidemic and visitation of foul brood that has stricken this and surrounding section, prospects could not be better. Colonies not infected are more than piling the honey in, but thousands of colonies are in bad shape. The trouble is spreading like a prairie fire in a big wind. The live beekeeper that learns how and is willing to fight pests will eventually win out. Some may believe that only weak colonies are the first to show the disease. Don't you believe it—none by strength alone are immune to it; neither is it brought about by visiting. I am satisfied the bees carry it into the hives from diseased material removed from the affected colonies.

Portland, Ore. E. J. Ladd.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Dr. Miller Answers Questions on Splints. F. R. Davis of New Jersey wrote Dr. Miller as follows: "I read your interesting book, 'Fifty Years Among the Bees' last year and adopted your idea of splints and like them, but I had a lot of trouble from the bees' gnawing out the splints. I waxed them as per direction, but they even removed the foundation an inch each side of the splints in their fury. Do you know why? Last year was a poor one for us, June being very dry and the rest of the summer exceptionally wet. During one or two light flows the bees accepted the splints better. One can do lots of stunts during a flow that won't work at other times. I used a bottom starter, and the bees did build right down to it, and the queen did lay way up to the top-bars, which I never saw before in my 30 years of peering into the mysteries of bee-housekeeping.

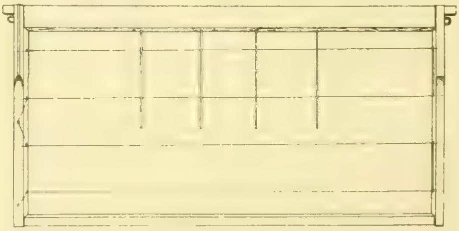
"I extracted from the outside frames (I use 12-frame hives), and had no trouble from breaking combs, and I can make an extractor shake the building when I bear on a little, which makes me believe that Mr. Root is wrong (April Gleanings) when he says that combs with splints will break in a power extractor. I have a Root 4 reversible, which I can run as fast as they need to be run. In fact, I tried to remove pieces that the bees gnawed off and was surprised to find how tough the wax had made the splints—a fact Mr. Root did not take into account. I made my own splints on a little buzz saw I rigged up and hitched to an emery wheel, using whitewood (Liriodendron) for the splints; but I wish the bees would leave the splints alone after I fix them."

To this letter Dr. Miller replies: "I'm afraid I cannot tell you anything you do not already know. Bees are well called 'busy bees,' and when they have nothing useful to do they will be busy at some mischief, and if a splint is not imbedded entirely to their minds they consider it an impertinence and try to dig it out. Let a flood of honey come, and they have no time to potter with such things, but build right over the intruder. A little close observation will show that the same thing is true of wired frames. The only thing I know to do is to abstain from giving foundation to be built out when honey is not coming in. That may be awkward in such a lean year as last year was with you, but I don't know any help for it. When, however, you succeed in having a frame entirely filled out with perfect worker-cells clear from top to bottom-bar, as you cannot have it filled out in any other way, you feel well paid for all the trouble you have had. I don't know just how far Mr. Root may be right in thinking that splinted combs will not do for power extractors, but I feel pretty sure that where the extractor is turned by hand, as it is in most cases, that splints will be found all right. Moreover, if Mr. Root should actually try splinted combs in a power extractor, as I very much wish he would, I think he would find the breakage much less than his theorizing would lead him to expect. He may say, 'Men that run power extractors don't have splinted combs;' to which I can only reply in the words of Shakespeare, ' 'Tis true, 'tis pity; pity 'tis 'tis true.' "

* * *

Splints Used on Large Scale. On page 228, April Gleanings, in an article on wiring frames, you have a fall-out with Dr. Miller in regard to his splints, and end with the statement that you know of no large beekeeper who is using splints. Now while I may not qualify as a very large beekeeper as beekeepers run in the West, still I am operating on a strictly commercial scale and basis, and at the present time have several thousand very fine combs drawn on splints. I have no sag whatever in them, and am of the opinion that they are as fine a set of combs as anyone can show.

I wire my frames horizontally with four wires, stretching them very tight, using No. 28 galvanized wire in place of No. 30 tinned, as I find this is stronger and will not rust.



Showing Mr. Fairchild's use of splints, preventing all sagging in his thousands of combs.

I imbed wires with electricity, all four wires at once. I take the current from an ordinary lamp socket, running it thru an electric flatiron for resistance. I then take a foundation splint which has been previously boiled for a half hour in wax, break it in two, and put four such half-length splints about 2½ inches apart at the top of the frame over the wires, pressing them into the foundation. I have absolutely no trouble whatever with sagging of the foundation, and I find this is quicker than running the extra brace wire, which nearly all of the systems you illustrate require. Instead of stringing the wire thru the holes in the end-bars, I drive 2-penny fine lath nails thru the end-bar from the outside and turn them over into a hook by means of a pair of pliers.

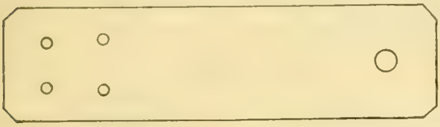
HEADS OF GRAIN FROM DIFFERENT FIELDS

This method is quite common in California, and permits stringing the wires tighter than does the other way. I have tried almost all methods of wiring, including the single-diamond and double-diamond perpendicular wiring and several of the methods you have illustrated, but find the splints are much more satisfactory and permit the use of the electrical imbedder which any method of crossing wires interferes with.

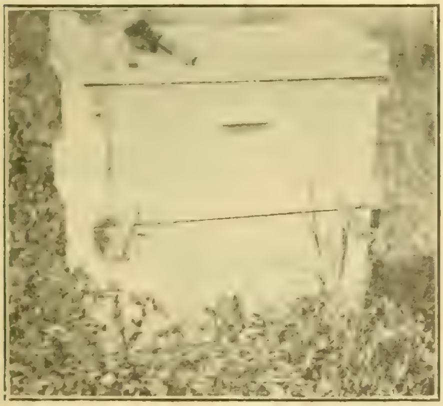
Redlands, Calif. R. E. Fairchild.

* * *

Fastening Two-Story Hives for Moving. Frank R. Buchanan, Glendale, Calif., has developed a very simple and unique scheme for fastening hive-bodies together for moving. It consists of a piece of galvanized strap iron of approximately one inch in width, 3 inches long, and 1/16 thick. The corners are rounded, and in one end a hole is bored large enough to admit a round-headed No. 8 1½-inch screw. The other end has four holes bored large enough for a stout one-inch wire nail. Two of these pieces are held by the screw about 1½ inches from the top of the lower hive on each side at the ends of the hive. When one hive-body is put on top of another the piece of strap iron is revolved at an angle and nailed and fastened to the upper hive-body by one nail driven clear home. If the roads are not too bad, two such pieces of strap iron on the diagonally opposite sides would hold the hive-bodies together. But Mr. Buchanan thinks it safer to have four. When I asked him why he had four holes in one end instead of one he said that sometimes the grain of the wood would not permit of a nail being driven in at any point. By driving four holes he has a choice of four positions.

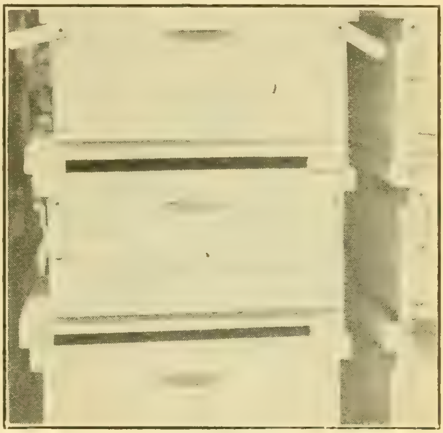


Fastener made of galvanized scrap iron about 1/16 inch thick.



Two fasteners are used on each side as here shown. Easily put on and easily removed.

When I first saw this scheme of fastening I did not think very much of it, because I thought the double-pointed crate-staples would be cheaper, as quick to apply, and just as good. In reply to this, Mr. Buchanan argued that the staples are mean things to pull out when once driven in; and when one is in a hurry he is liable to leave those hooks sticking out that catch the flesh or clothing, with painful results. When the staples are entirely removed they are liable to be dropped on the ground to be stepped on, piercing thru the shoes into the feet. With his fastener the work is done more quickly and surely. Then he showed how much easier it is to loosen the nailed end of the strap iron and draw the nail with a common hammer.



Showing different positions of the fasteners to indicate as many different conditions of the hive.

I found that many beekeepers in the vicinity of Los Angeles had adopted the device. When I asked Mr. Buchanan if he was going to patent it he said, "Fudge! no. If it is of any value, let the people use it." These fasteners can be made at a machine shop or a blacksmith shop equipped with a small drill press. They will last a lifetime, and are always ready.

Mr. Buchanan has discovered another use for these fasteners. They can be revolved at various angles, each angle representing some one condition of the hive. By using two of them on each side all sorts of combinations can be made. With a glance down

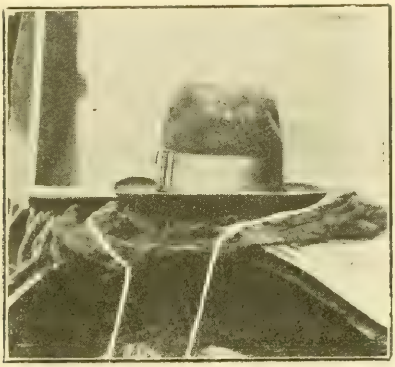
HEADS OF GRAIN FROM DIFFERENT FIELDS

the rows of his hives one can very quickly determine the condition of each hive at the previous visit as shown by the angle or angles of the fasteners. E. R. Root.

* * *

Greasy Waste as Smoker Fuel. About 10 or 12 years ago, several articles appeared in Gleanings stating that greasy waste was such good fuel for the bee-smoker. At that time I tried it out, with very unsatisfactory results; the bees getting the best of me each time, seeming to become very angry at the smell and the hot smoke.

Several days ago, I had occasion to increase artificially a few colonies of bees, and, having no other material handy, used some greasy waste which I found there. The result is shown in the accompanying photograph, which is "the end" of a very exciting movie reel entitled, "The Beginning of a Perfect Day."



Greasy waste bee stings.

I counted over 200 bee-stings, which were left in my hat. These were from bees of one hive only, into which the greasy smoke was blown. I changed fuel after that, and had no trouble in handling the other bees.

Baton Rouge, La. E. C. Davis.

* * *

The Use of Steam in Extracting. I have found the use of steam heat in the extracting-house a great success. I use it for melting the cappings and for heating the honey and keeping it just right so the honey-pump can handle it. The steam is led into the capping-melter, the uncapping-tank, also under the extractor and under the pan that heats the honey for straining, and under the tank that delivers the honey to the pump. All of these five places need no special attention. I simply have to keep up the steam outside under the boiler, and that is easy.

Brush, Colo. Daniel Danielsen.

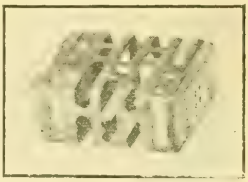
How to Get Rid of Pollen-clogged Combs. In a back issue of Gleanings I read the suggestion of getting rid of pollen by putting pollen-clogged combs above the excluder with the queen. This is all right; but the bees will clog other combs below again, so the same thing will be repeated. I take a knife or hive-tool, or something sharp, and cut and demolish the surface of the comb where the pollen is, and then give it to the bees. They will clean it all, carry it out of the hive, and repair the combs ready for the queen to lay in them.

Brush, Colo. Daniel Danielsen.

[Unless it is certain the colonies have pollen far in excess of their needs it should not be destroyed, but saved for brood-rearing, when it will prove to be exceedingly valuable. In some localities, however, there is always sufficient pollen without any special foresight on the part of the beekeeper. —Editor.]

* * *

Queen Cages for Swarm Prevention. My cage for confining the queen on the top-bar during the swarming season was given on page 715, 1917 Gleanings. For years I have often caged in this way for 10 days as a swarm-preventive measure. I find, however, that it is better to cage the queen nearer the brood and, therefore, now use the cage in the accompanying illustration, destroying the queen-cells and pinning the cage containing the queen to the comb by means of a nail, at the end of nine or ten days releasing her and destroying any cells that may be found.



Thompson's queen cage used in prevention of of swarming.

There is no danger of the bees' balling the queen while she remains in the cage. The perforations allow the bees to enter and freely mingle with the queen, but prevent her from leaving the cage.

Having the queen confined in the perforated cage has much the same effect as tho the queen were above in the super, but when the queen is confined in a wire cage in a normal colony, another queen will be reared and mated while the old queen is caged.

There is some prejudice against confining a queen for fear it may spoil her as a layer. It will do her no harm, however, if she is not removed from the hive.

Medina, O., J. E. Thompson.

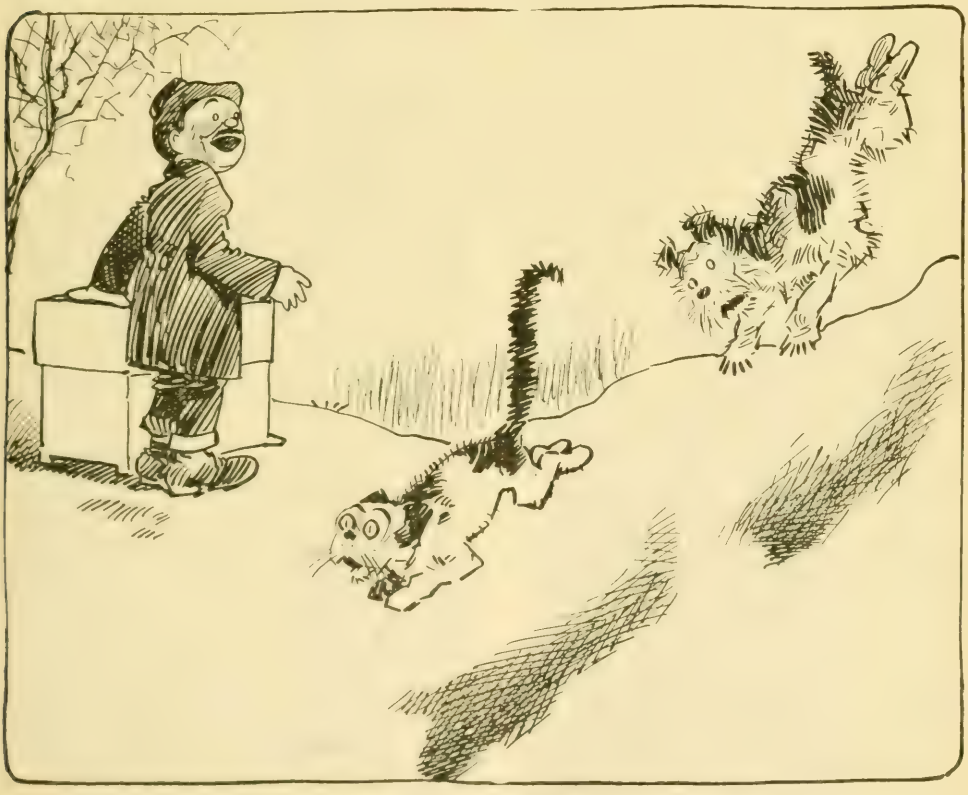
HEADS OF GRAIN FROM DIFFERENT FIELDS

Buttonbush in Some Places is Valuable Honey Plant. The buttonbush (*Cephalanthus occidentalis*) is also called buttonball, buttontree, honeyballs, globe flower, pond dogwood, and buttonwood shrub. In North America there is only one species of buttonbush or *Cephalanthus*, a brief description of which is given in the A B C and X Y Z of Bee Culture. There are, however, five other species found in Asia and tropical America, some of which are small trees. Our species is very widely distributed, extending from New Brunswick to California, and southward to Florida, Texas, and Arizona. It belongs to the Madder family, or *Rubiaceae.* The English name, "buttonball," is also used for the plane tree (*Platanus occidentalis*), which has very small green flowers in dense globular heads. Hence it is better not to use this name for the buttonbush.

In North America the buttonbush grows along the banks of rivers and in dense masses in swamps. The corolla-tube is 9 mm. (½ inch) long while the tongue of the honeybee is only 6 mm. long; but as the tubes are trumpet-shaped, flaring at the mouth, the honeybee is probably able to obtain all or nearly all of the nectar. The nectar is abundant; and, besides the honeybee, the plant also attracts bumblebees, various solitary bees, and a large number of butterflies which are easily able to drain the nectar with their long slender tongues.

In the vicinity of large swamps the buttonbush is often a valuable honey plant. This is especially true in the bottom lands of the Mississippi River, where this shrub covers large areas. In Gleanings for Oct. 15, 1914, G. W. Haines describes a large swamp, ten miles long, at Mayfield, Mass., in which there is a profusion of buttonbush bloom. It comes into bloom in August with buckwheat, and at about 11 o'clock the bees usually leave the flowers of buckwheat and start for the great swamp, where they work on the buttonbush all day. The honey is mixed with that of buckwheat, to which it gives a fine flavor. It has been described as mild and light-colored.

Waldoboro, Maine. John H. Lovell.



BACKLOT BUZZER.

Benny Sourweed says: "When these bee experts get to quarrelin' over the best way to hive 'em, smoke 'em, or winter 'em, it jes' makes him think of old Tige and Bill McIlvir's cat.

GLEANED BY ASKING

Iona Fowls

QUESTION. — When I ran my bees for comb honey and practiced "shook swarming" I placed the two outside combs of the colony that was to be shaken, containing honey and pollen, in a new brood body and by using dummies contracted the brood-chamber and forced the honey above. I found that if there was any unsealed brood in these outside combs the bees would rear queens and supersede, or the queen would disappear. In running for extracted honey and placing the queen below with one frame of brood and the rest of brood above an excluder, I find that a large per cent of queens placed below disappear. I keep my queens clipped so I know they do not swarm. May it not be on account of the unsealed brood that the queens become missing, and would it not be better to place, below, a frame of sealed brood too old to rear queens from? What has been the experience of others?

Indiana. D. F. Rankin.

Answer.—Our experience has been that queen-cells are not usually started on the unsealed brood in the instances which you mention, unless such unsealed brood is in a chamber apart from the queen. In the extracted-honey plan that you mention we wonder whether you left plenty of super room immediately above the brood-chamber. When we have done this there have not generally been queen-cells started below. Queen-cells are, however, more apt to be started in the brood-chamber if sealed brood is left there, for as soon as the sealed brood hatches there will be a good many young nurse bees, which are more apt to cause queen-cells to be started than are the older bees. In a colony that has already made preparations for swarming we would greatly prefer to keep the hatching bees far above the brood-chamber.

Questions.—(1) Are the queens that are raised by the bees in a good swarming season just as good as queens that can be bought, provided a man has good Italian bees to commence with? I bought six queens last July from a good breeder and last June raised four queens myself by a queenless colony. Now the colonies that have the queens I raised myself are much stronger than the six for which I bought queens. (2) Lately I have been raising a few more queens; but a day before the cells were hatched, I opened six of them and found that there wasn't a bit of jelly left at the bottom of the cell. Will these queens be all right or is it better to destroy them and try to raise others? I have only 20 colonies of bees and would like to have only the very best and strongest queens in every one of them.

Texas. C. G. Wuthrich.

Answers.—(1) We believe so. Others, however, contend that the progeny of queens raised under the swarming impulse are more likely to swarm than are those raised under the supersedure impulse. If one has good Italian bees to begin with, there is no reason why he cannot raise fine queens himself, and in time he may learn to raise queens even better than any he will be apt to buy, for queens, after they go thru the mails, are not in quite as good condition as before sending. Their daughter queens, however, would be very good and would, perhaps, be a better strain than your own. (2) Just before the hatching of the queen the cells are often found with little or no royal jelly. We think you will find those queens are all O. K. We certainly would not destroy the cells.

Questions.—(1) In my new hives there are no division-boards. Is it necessary to buy a division-board? I have a swarm of about four pounds that I hived in a ten-frame hive with full foundation in the frames. They cover about four frames. Should they be confined to these four frames or allowed the run of the whole hive? (2) These hives have a space at the side almost large enough for an eleventh frame. Is a large space like that proper? (3) Should the bee-escape in the inner cover be kept there when no sections are on—just the brood-chamber and cover? (4) Should swarms have full foundation or will they remain with inch starters only?

Virginia. S. C. Wolcott.

Answers.—(1) In case of full colonies it is not necessary to have a division-board, unless you wish to contract the brood-chamber when putting them into winter quarters, and even in this case you could easily make a division-board of thin boards yourself. It would be well to have a few such division-boards on hand, no matter how you prepare for winter, because there are times when one has a weak colony and does not wish to give them the entire hive. In case of weak colonies it is best to give them only as many combs as they can conveniently occupy, and then place a division-board between the outside frame and the vacant space. Then as fast as the nucleus increases in size more frames may be added. (2) When the frames are new there is quite a space at the side, but after they have been in use for some time the bees propolize them to such an extent that this space at the side is taken up, and there is just enough room to remove the frames easily. While the frames are new it would be well to space them evenly, so that the bees will draw out the combs equally in each frame. (3) The bee-escape should not be left in the inner cover, but the opening for the escape should be covered by a piece of section or other thin strip of wood. (4) Swarms should not be given inch starters, but should have full sheets of foundation, or, better still, drawn combs. In case you have a few drawn combs we would suggest replacing two or three of the frames of foundation with drawn combs, since the bees will be much more contented with a little drawn comb toward the center of their hive.

Questions.—(1) On the 18th of May I cut a bee-tree, a big tulip tree, six feet in diameter. I left the hive at the tree for over a week when I found the bees had built queen-cells and seemed fewer in numbers. Evidently the queen was mashed or went off with a swarm. Not long ago I brought the hive home and now (June 7) there are neither young bees nor eggs in the hive, altho the combs are white with honey and the bees have drawn out part of the foundation. Shouldn't the queen be laying by this time if there is one in the hive? It takes 16 days for a queen to hatch out; how long should it be before she starts laying? (2) I just gave this colony a frame with eggs and young larvæ; was that all right? (3) After a prime swarm issues what is the shortest number of days before another swarm may come out?

Virginia. Carrington Calloway.

Answers.—(1) From your description you evidently wrote us 20 days after your first queen was lost. It would probably be 10 to 12 days before the virgin would hatch. Then it would likely be from five to eight days longer before she would be laying. (2) Yes, that would give them a chance to start queen-cells in case they had no queen. (3) The time that will elapse between the prime swarm and the after-swarm depends a great deal on weather conditions. In case of unfavorable weather such that the queen is confined to the hive for some time, the first after-swarm might issue as soon as three days after the prime swarm, but this, of course, would be unusual. Generally the first after-swarm does not issue for as much as eight days after the prime swarm.

Questions.—(1) My two colonies being short of stores this spring, I fed them for a week, when a swarm issued. On looking over the hive I found it chock-full of honey. Did I do right in feeding so much? I hived the swarm and in less than 10 days they sent out another swarm, and I caught the queen and clipped her wings and they are doing nicely. (2) We have another hive which sent out a nice swarm and we hived them without a sting. In about 10 days it sent out another swarm, and they were the crossest bees I have ever seen in my life. What do you think could have been the reason? My bees are all Italians.

Virginia. H. E. Anderson.

Answers.—(1) It was all right to feed the bees since they were in actual need of stores, but apparently you gave them more than they really needed, and they, therefore, filled the brood-chamber with honey so that the queen had not enough room to lay, which condition probably caused the swarming. When the first swarm issues, all the queen-cells but the best should be torn down and the old hive moved to a new location. This prevents after-swarms. It is unfortunate that you clipped the wings of the queen in your after-swarm. The queens in after-swarms are unmated, and, since queens mate while on the wing, it would be impossible for such a queen to mate if her wings are clipped. She should be killed and a laying queen or capped queen-cell given. (2) As a general thing, swarming bees are good-natured, but occasionally they may be cross. If they swarm with little or no honey in their honey sacs they are very cross.

Questions.—(1) Two of my hives containing clipped queens swarmed out about a week ago. Being away at the time they all went back in the old hives. Several days later one colony swarmed out and this time clustered. Could there have been a virgin queen with them or will they sometimes cluster without a queen. I found the old queen crawling about in front of the hive. (2) After hiving the new swarm, I placed the old queen in the new hive and set it on the old hive-stand, giving them a frame of brood and honey from the parent colony. This frame contained two capped queen-cells which I discovered afterwards. Should I cut these out? (3) The other hive has not yet swarmed for the second time. I found the old queen outside the hive several days. She seemed to be hurt, as she moved about very slowly, dragging her hind legs, and the next morning I found her dead. Upon examining the colony I found a dozen capped queen-cells. Do you advise cutting them all out but two, leaving one for the old hive and one to lead out a swarm? (4) Should I cut out all queen-cells from the hive that swarmed? Will this prevent after-swarming?

Pennsylvania. Earl B. Hunt.

Answers.—(1) Bees often swarm out and cluster even when their queen is not with them, but if she is not in the cluster they will very shortly return to their hive. (2) When hiving the swarm they should not be given capped queen-cells. You see if capped queen-cells are given them and they also have their queen, they will be very likely to send out another swarm. Any time, however, when you think there may be a virgin queen present, the swarm should be given a comb containing some eggs and young larvæ. The swarm will stay more contented. (3) Quite likely the other swarm with the injured queen left their hive, the queen with them, and she being unable to fly became in some way injured before she returned to the hive. In such a case, all of the queen-cells but one should be torn down. (4) For preventing after-swarms, about the easiest plan is to tear down all but the best queen-cell and move the old hive to a new location, hiving the colony in the new hive, left on the old stand.

Questions. (1) How would the following treatment of swarms work when no increase is desired? Hive the swarm on combs of full sheets of foundation on the old stand; shake or brush all bees remaining in the parent colony in front of the hive containing the swarm; place the beeless brood, after killing all queen-cells, over an excluder, on a hive being run for extracted honey; kill queen cells again in a week if necessary. (2) Would it be better to divide the brood from the parent colony among several colonies instead of placing all of it over one hive?

Washington, D. C. R. E. Hile.

Answers.—(1) It would be possible to treat your swarms in the way that you suggest in case no increase is desired. However, there would be a possibility that the bees would immediately start other queen-cells and swarm again. Simply removing the brood oftentimes will not discourage the swarming fever. It would be much better to remove also the young bees together with the brood; for these young bees are the very ones that are primed with royal jelly ready for queen-cells. (2) Yes, if all the colonies are already strong. It would be better to help up two than to get one so very strong that they themselves might plan swarming.

BEES, MEN AND THINGS

(You may find it here)

Bees are doing fine — at least all that are strong enough. At the present time mine have from 75 to 100 lbs. of honey and I am certain they will average 100 lbs. We have had considerable rain in June and prospects are further brightened.''—W. T. Rabb, Travis County, Texas, June 10.

''Weather conditions thruout the State of North Carolina have been awful this spring for queen and bee rearing.''—H. B. Murray, Randolph County, N. C.

''Those who wish to try the giant spider plant (cleome) and do not know where to obtain the same, may get it from the W. Atlee Burpee Co., Philadelphia.''—Bernard E. Johnson, Campbell County, Va.

''I will not be able to ship half the bees I prepared for because of the weather, and have lost (in mating) over 60 per cent of my queens, and more swarmed out leaving five frames, brood and honey.''—L. L. Ferebee, Jasper County, S. C.

''Starting three years ago with one stand of bees I now have 15. I averaged 96 pounds to the stand last fall and sold it for 50 cents a pound. I think that did pretty well for the kind of year we had.'' —Arthur I. Greene, Greene County, Pa.

''We have just finished the most wonderful flow from dandelion we have ever had. I shall have several hundred pounds surplus in addition to having every brood-chamber actually honey-bound by it. Clover is in wonderful condition. Conditions seem right for a big crop. But the awful loss of bees will keep the total crop down.'' —A. C. Ames, Wood County, Ohio.

''I will give you my plan to stop bees from robbing which worked just fine. Take a piece of wire cloth and fasten it at each side against the hive letting it rest on the bottom-board. Cut a little strip in the wire and turn up a notch for the bees to pass. When Mr. Robber once gets in he seldom gets out, if the bees being robbed have not completely given up and are offering no resistance whatever.''—Mrs. J. M. Wright, Mercer County, W. Va.

''We have certainly had some of the worst weather in the history of southern Alabama since January. The oldest settlers say they have never seen anything equal to the bad weather of this year. We had nothing but rainy, cloudy, cool and stormy weather. If all the sunshine we have had this year were put together, it would not amount to three weeks. The spring flow was a complete loss, and we are having to feed stacks of sugar to keep the bees alive. This weather has certainly ruined the queen - breeders in this section, so far as reputation for delivery on time may be concerned. It was simply impossible to fill orders promptly under the circumstances.''—V. R. Thagard, Butler County, Ala., May 28.

''Frequent rains in early spring have kept the bees in this locality from storing but little surplus, that being from persimmon intermixed with rattan. Persimmon seems to be one of our best yielders, especially in wet years, inasmuch as the flower cups turn downward, thus preventing the nectar being washed out by the rains.''—W. A. Morris, Morgan County, Ala.

''The May issue of Gleanings in Bee Culture lists Mississippi as being without a foul-brood law. By an act of the legislature passed this year Mississippi now has a foul-brood law. No one in this State can ship honey, bees, queens, or any other apiary product without a certificate of health, and, of course, no such material can be shipped into this State unless it has a similar certificate to the effect that it has been inspected and found free of foul brood.''—R. B. Wilson, Extension Specialist for Bee Culture in Mississippi.

''In more than 20 years of beekeeping I have never experienced such spring weather. I have been feeding for two months to keep the bees from starving, and in all that time they had only one nice warm day for a good flight. They got nothing from fruit bloom on account of so much cool and cold weather and rain. Sugar is 33 cents retail, 30 cents wholesale; and cannot be had at that figure. Another week of such weather and I won't have a colony left from 40 spring count. There are only 25 left and altogether do not have five pounds of syrup and the sugar ordered is not coming.'' —Jas. Backler, Madison County, Mo.

''We are in the midst of a splendid honey flow from alsike clover. It looks like the best showing for years; in fact, I have two-story ten-frame hives and three-story eight-frame hives that are ready to extract. White clover is coming fast, but I count ten to one on the alsike. After several other sources of honey there comes in October the aster, which for the past 18 or 20 years has never failed to give abundant winter stores. Altho but few people will use aster honey, yet I have a few customers who prefer it to clover honey. I sold some at 35 cents a pound, but could not extract much on account of its being candied.'' Locust Land Farm & Apiaries, Washington County, Pa.

TALKS TO BEGINNERS

By Iona Fowls

To be sure we have already stated that the most delightful time to work with bees is at the time of queen-clipping, during fruit bloom, when the whole world is just starting anew; and yet, in spite of apparent inconsistency we would now like to say that for pure enjoyment and an expanding good will toward the whole world and everyone in it, we know of no time quite like that of the harvest when the heavily laden bees by the thousands are busily rushing in their golden wealth to the accompaniment of the most heavenly music they are capable of producing.

This spirit of work is quite contagious and the beekeeper likely feels inclined to rush about and move the world a bit himself, and, if he is an extensive beekeeper, there will probably be plenty of chance for it; but for the beginner who is preventing swarming and keeping his colonies supplied with plenty of room as we have previously advised, there will be little work for him to do until the honey is ready for removal from the hives. During this intervening time, he would do well to review carefully our last "Talk" concerning robbing, swarming and supering.

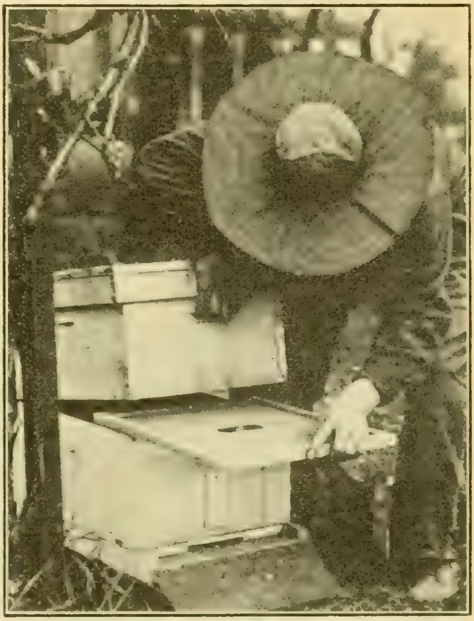
Removing the Comb Honey.

Comb honey should not be removed from the hive until the cells are completely sealed with the possible exception of a few sections in the two outside rows. If removed sooner than this, the honey will not be properly ripened and will be likely to ferment. Also such sections are not as nice looking and do not bring as high a price. On the other hand if sections are left on the hives too long, the snowy-white cappings become soiled and travel-stained by the thousands of feet daily tramping over their surface; and altho such honey is just as good, in fact a little better because riper, still it is not as beautiful and does not sell for as high a price. The different supers will be completed and therefore removed at different times. Before removing a super of comb honey, it should be placed above the supers not yet completed and just under it should be inserted an escape board, rim side up, and with escape in place. Then the super should be very carefully covered so that not a single bee may enter, for if a bee succeeds in finding a crack big enough to enter, a real case of robbing will soon be in progress, and, unless stopped, will result in one less super of comb honey. If the escape board is put on during the middle hours of the day, the super may be removed the next day.

All that is necessary to prepare comb honey for sale is to take a sharp knife and carefully scrape the particles of wax and propolis from the outsides of the sections. Sections that are to be stored for the family use should be piled carefully so that no moths may gain access. If left in a damp place, the honey may ferment, and if left where there are too great changes of temperature it will granulate more rapidly. Therefore, comb honey should be stored in a dry warm place.

Harvesting the Extracted Honey.

All combs of extracted honey that are three-fourths sealed are ready for extracting, but in the case of extracting supers there is no great hurry for removal before the cappings become travel-stained, for at extracting time these cappings are sliced off anyway and the honey removed by means of an extractor. Therefore, those who have enough supers so that their bees may be supplied with plenty of room until the flow is over, will not need to extract until after the flow and then the completed supers may all be removed. When left on until completely ripened the honey is thicker and has a much finer flavor. The extracting supers should be removed by means of the escape board in exactly the same way as the comb-honey supers. When first removed the honey is warm because of the heat from the bees. Therefore it will extract more readi-



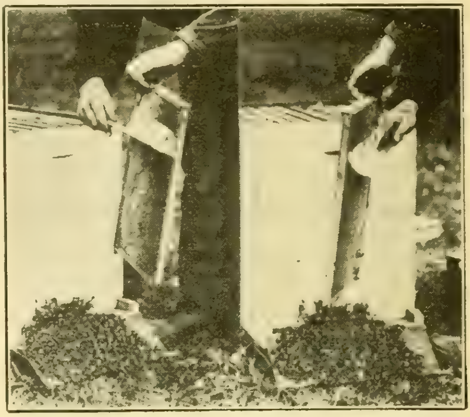
The escape-board with rim side up is placed just below the super to be removed. In about 24 hours the bees will have left the super when it may be removed.

ly the same day it is removed than it will later when it has had time to cool. For the same reason some prefer the ventilated escape which allows the heat from the bees to rise into the super even after the bees have left it.

Once in a while it may happen that dead bees may clog the escape so that the bees are unable to leave the super. In such a case if one does not wish to wait another day, but prefers to take the honey immediately he may remove the combs one at a time, and holding them in a vertical position, give them a sudden shake in front of the entrance. This will remove most of the bees and the remainder may be brushed off by means of a brush, feather, or handful of grass, as shown in the illustration. The combs, one at a time, as soon as cleared of bees, should be placed in a box and covered so no robbers may find them. This work of shaking and brushing should not be resorted to unless it seems really necessary, for after the honey flow there is always danger of starting robbing.

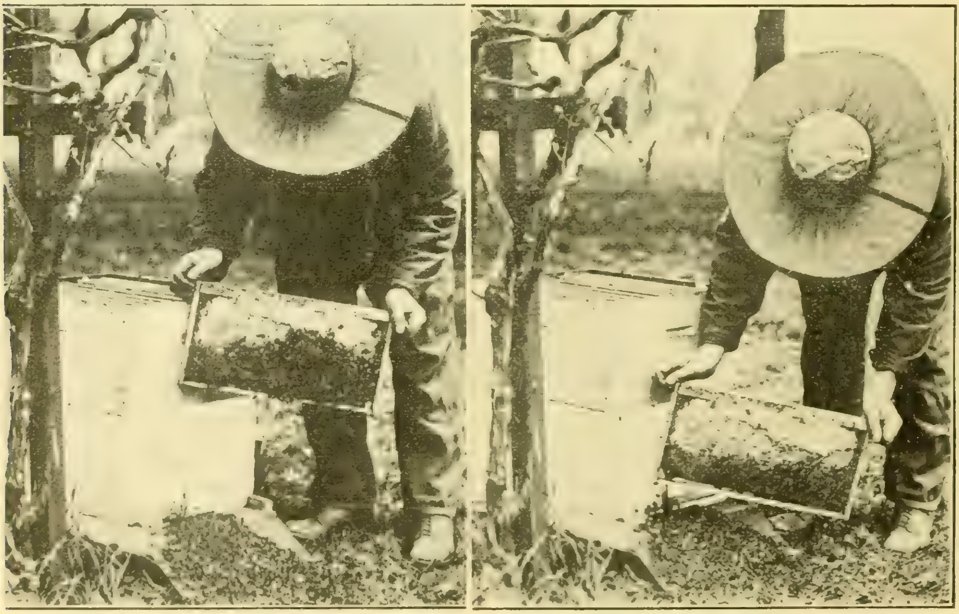
Extracting Equipment.

The room in which the extracting is done should have screened windows and no openings anywhere large enough for robbers to enter. There should be room enough not only for the extracting equipment, but also for the supers to be stored before and after extracting. Near the window where there is a good light should be placed the uncapping barrel which stands in a galvanized tub. The barrel has both heads knocked out and is screened on the bottom with quarter-inch mesh screen, and across the upper end about one-third of the distance from one side has a two-inch strip which is nailed in place. At the middle of the strip is a sharp-pointed nail projecting upward about an inch to hold the frame while uncapping. It may be necessary to nail two strips to the bottom of the barrel to support it in the tub into which the cappings are to fall.



Brushing the bees from both sides of the comb.

The extractor should be firmly attached to a box which in turn is securely bolted to the floor. If placed near the wall there will be less danger of vibration which is hard on the combs and sometimes causes them to break. The box should be just the right height so that a galvanized honey pail may be placed



To shake bees from a comb, hold it as shown and give a sharp jerk. Most of the bees will be dislodged at the second or third jerk. The few bees remaining may be brushed off.

under the faucet when ready to draw off the honey from the extractor.

Near the extractor should be the straining can in which is suspended a large cheesecloth bag attached to a barrel-hoop supported by the top of the can.

Process of Extracting.

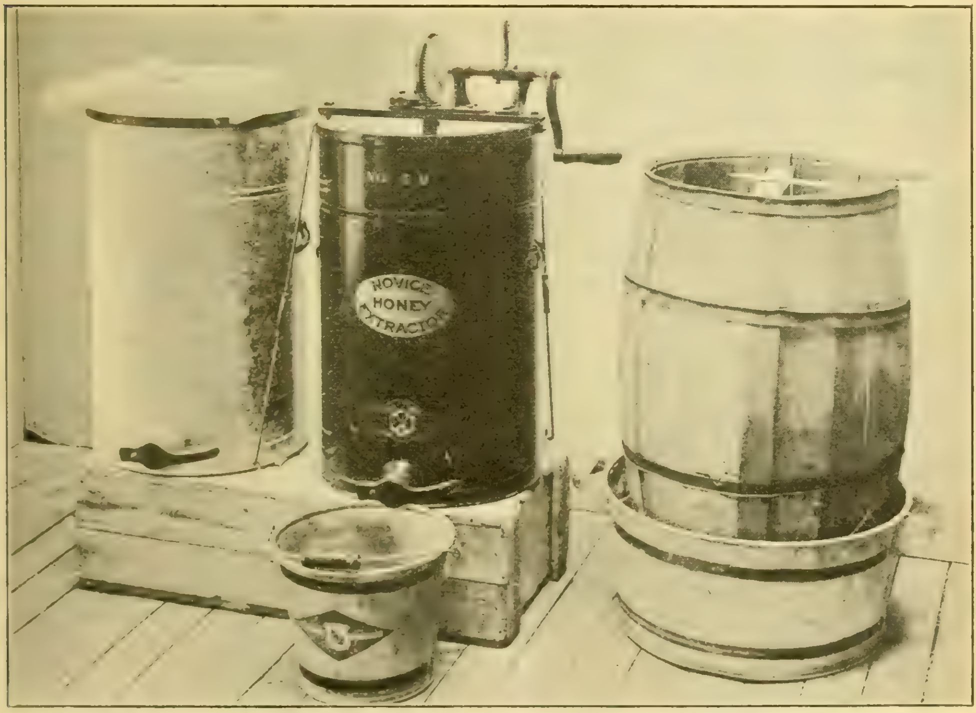
Each comb, one at a time, should be taken from the super, held with the top bar furthest away and the lower end bar resting on the nail point of the cross piece. Then holding the upper end of the frame with the left hand and leaning the upper end slightly to the right so that the cappings may fall freely and not adhere to the sticky surface of the comb, begin at the lower end of the comb and with an extracting knife dipped in hot water cut the cappings from the entire right side of the comb, performing the operation with a kind of sawing motion. Next reverse the comb and with the top bar still away from you, remove the cappings from the other side. Then by means of the cross bar scrape any cappings adhering to the knife.

After uncapping, the combs may be placed one in each basket of the extractor, the top bars being next the hinge. Combs in opposite baskets should be of about the same weight as they are less likely to break if properly balanced. Old dark combs whose cell walls have been strengthened by several layers of cocoons will not be likely to break, but when extracting new delicate combs, it is a good plan to extract only about half of the honey from the first side, then reverse and extract the opposite side and then complete the extracting of the first.

As soon as the honey is near the reel, some of it should be drawn off at the faucet, running it into the honey pail and then emptying into the straining tank. When the tank is nearly full it may be run into sixty-pound cans or other receptacles to be stored.

The combs as fast as extracted are stacked up in the same room and toward night are piled five or six on a hive over an empty super, leaving the bees to clean out the honey still adhering.

Altho honey will probably bring a good price and the beginner will naturally wish to get as large a crop as possible let him not be penny wise and pound foolish. There is little doubt that fall will find many beekeepers short of winter stores and short of sugar for feeding. Therefore, we strongly urge that enough combs of honey be saved to carry the bees thru until the next honey flow—at least five or six full combs. These combs may be carefully stored where the moths cannot find them and not given to the bees until fall when preparing for winter.



A beginner's extracting outfit. The barrel with both heads knocked out and a coarse screen nailed to the bottom makes a very good uncapping can when supported over a tub. A large cheese-cloth bag with a barrel hoop nailed to the mouth and supported in a can, makes a good strainer. Instead of the straining can, a tight barrel may be used, provided it has a faucet at the bottom.

JUST NEWS

Editors

THE summer field meeting of the New Jersey Beekeepers' Association will be held in Samuel Buser's apiary, near North Haledon, Passaic Co., on Saturday, July 10, beginning at 9 a. m. The principal features of this meeting will be seasonable manipulations, including treatment of colonies for American foul brood. Elmer G. Carr of New Egypt, N. J. is secretary of the Association.

* * *

The annual Chautauqua of Wisconsin beekeepers will be held August 16 to 21. The meeting place will be Madison. H. F. Wilson of the beekeeping section of the Department of Economic Entomology at the University of Wisconsin is in charge.

* * *

The beekeepers of Georgia will meet on July 3 at Waycross, Georgia, for the purpose of organizing a Georgia State Beekeepers' Association. J. J. Wilder is the leading spirit in this step toward better beekeeping in this State.

* * *

The annual summer meeting and basket picnic of the Western New York Honey Producers' Association will be held on July 31 at the apiary of Frank W. Churchill, West Valley, N. Y. A good program has been provided and all interested in bees or honey are cordially invited.

* * *

The Michigan Beekeepers' Association will hold its annual summer meeting at Boyne City on July 28 and 29. Among the speakers will be E. R. Root, whose subject will be "A Fourteen Thousand Mile Trip Among the Beekeepers." A very excellent program has been prepared.

* * *

The Panhandle Beekeepers' Association and the W. Va. State Beekeepers' Association will hold their summer meeting at Elm Grove, W. Va., on Aug. 10, 11 and 12. Dr. E. F. Phillips, Kennith Hawkins, E. R. Root, and T. K. Massie are on the list of speakers for this big meeting of the West Virginians.

* * *

The summer outing of the N. Y. State Association of Beekeepers' Societies will be held at A. N. Coggswell's apiary, Groton, N. Y., on Friday, Aug. 6. Geo. H. Rea, E. R. Root, Dr. Geo. G. Atwood, and Kennith Hawkins are on the speakers' list for this beekeepers' event.

* * *

The summer meeting and basket picnic of Chenango County, N. Y., Beekeepers' Society will be held at the apiary of George S. Hard, Norwich, N. Y., on Thursday, July 22. This will be a meeting of practical demonstrations in connection with modern beekeeping, including an illustrated lecture in the evening. Geo. H. Rea, Extension Specialist in Apiculture, Ithaca, N. Y., will be present and take active part in the program.

* * *

C. E. Millspaugh, who has had 18 years' experience in the marketing of bee products in American and foreign countries, has been made general manager of the California Honey Producers' Co-operative Exchange in place of Charles B. Justice, who resigned to enter business for himself. With Mr. Millspaugh as active head of the Exchange it is expected that plans for the cooperative marketing of bee products in California will be materially furthered.

* * *

At the last regular meeting of the Ohio Beekeepers' Association held in January a demand for a representative exhibit of bee products at the State Fair was presented. The plan in use in Michigan was selected, and it was voted to give it a trial in Ohio the coming fall. This plan gives the State Fair Board the privilege of stating what it desires for exhibition purposes from each producer who subscribes to send bee products, but with the understanding that what is accepted is sold and a fair price returned to the sender. James S. Hine, Secretary Ohio Beekeepers' Association, Ohio State University, Columbus, Ohio, is in charge of the work, and from him any information desired may be secured.

* * *

The beekeepers of New York won their fight in the State Legislature to secure a larger appropriation for fighting bee disease in the Empire State. A committee appointed at the New York State Beekeepers' convention did effective work at Albany last winter and spring which finally resulted in an appropriation of $10,000 for additional inspection of bees. The same committee attended to the amendment of the foul-brood law also. This appropriation was secured by a very narrow margin as Governor Smith rejected the appropriation when first presented, but upon its re-passage, he approved it. At a conference held at the office of George G. Atwood, Albany, attended by Messrs. Charles Stewart, Mr. Wright (State Inspectors), S. D. House, and Orel L. Hershiser, the State was divided into 16 districts, each composed of one or more counties according to the amount of disease that is supposed to be present in the locality, each of which is to have a local inspector to be employed only during the season when inspection will do the most good — during the spring and summer.

OUR HOMES

A. I. ROOT

Thou hast loved righteousness and hated iniquity. —HEB. 1:9.

And beside all this, between us and you there is a great gulf fixed.—LUKE 16:26.

Let the words of my mouth and the meditation of my heart be acceptable in thy sight, O Lord, my strength and my redeemer.—PSALM 19:14.

IN Our Homes for July, 1919, I mentioned a series of articles in the *Sunday School Times* entitled, "How Lawyer Scofield Was Won to Christ;" and I made a couple of extracts from that article. I wish now to make another extract; and I have chosen to make it because it illustrates so well the difficult things a follower of Jesus Christ is sometimes called on to do. I have had a few experiences of the kind myself. This extract also discloses the painful fact that sometimes even bad and wicked men get into the United States Senate. Below is the extract:

> Mr. Pomeroy was nominated to succeed himself as Senator of the United States, in a speech in which his "great services" to the State of Kansas were fully rehearsed.
>
> Then Senator York, the leader of the anti-Pomeroy forces, rose to his feet, deathly white. Scofield looked at him, and was afraid he would not be able even to use his voice, so overcome by emotion did he seem. But in a moment, to the utter amazement of all who heard him, he said, "Mr. President, I rise to second the nomination of S. C. Pomeroy." (Representative Scofield was not then a converted man, and he decided then and there that after the meeting he would take the senator outside and thrash him.) "But," went on Senator York, reaching to his hip pocket, and drawing out a large bundle of something, "not to a seat in the United States Senate, but to a cell in the Kansas State Penitentiary at Leavenworth." He then called to his side one of the boy pages of the legislature, and continued: "Mr. President, I am sending you by the innocent hand of this boy seven thousand dollars in greenbacks that were handed me last night by S. C. Pomeroy for my vote."
>
> The bundle of money was carried up to the desk of the Lieutenant-Governor, and there, in the presence of all, it was laid in plain sight upon a book. There was a silence like death over the entire hall of representatives.

May God be praised that we have men in the Senate like Senator York as well as occasionally one (and we hope it is *very seldom*) like Senator Pomeroy. I can not tell from the *Sunday School Times* exactly how long ago the above transpired; but I trust and pray that the present Senate of the United States is composed of men of established and unquestioned character. It was a terribly hard ordeal for Senator York. No wonder that he was scarcely able to use his voice. I wonder if he had ever used my little emergency prayer—"Lord, help." If there was ever a time in his life when such a prayer was needed, it was just at that moment. The clipping does not tell us how Mr. Pomeroy received the terrible arraignment. I was particularly struck with Mr. York's manner of calling on an "innocent boy" to carry that great roll of greenbacks to the President of the Senate.

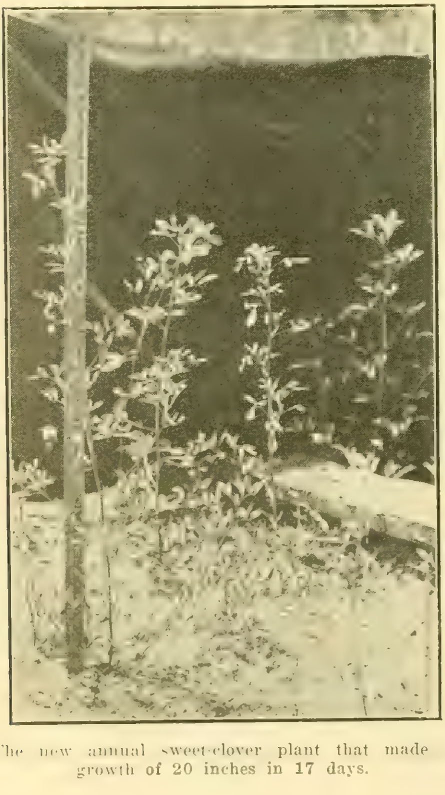
Now, friends, let us for a moment consider my last text—the one which you have heard me talk about so much of late. Contrast the man who makes this text his daily prayer with the one who handed out $7,000 as a bribe to get himself back again—bad and wicked man that he was—in the Senate of the United States. I do not know what the punishment for such a crime is—for crime it certainly was; but it occurs to me that the penitentiary for life would be none too severe. Who can tell what harm might be done by even one man like that in our national Senate? Now, in contrasting the man who makes that little prayer his great object in life with the man who would hand out such a bribe, and in trying to imagine the great gulf, I was reminded of the words of our second text—"Between us and you there is a great gulf fixed," etc. The Lord Jesus Christ, and he alone, can bring the sinner safely over this gulf and plant his feet on the solid rock. In our first text, righteousness and iniquity are contrasted, and there seems to be no half way between the two. Several times lately in exhorting different people whom I have met, discussing church membership, etc., and after having been unable to get a direct answer as to where they stood, I have asked the question, "Do you accept the Lord Jesus Christ as 'the Lamb of God that taketh away the sin of the world?' and do you accept him as *your* Savior and your only hope of 'everlasting' life?"

"Whosoever liveth and believeth in me, shall never die. Believest thou this?"

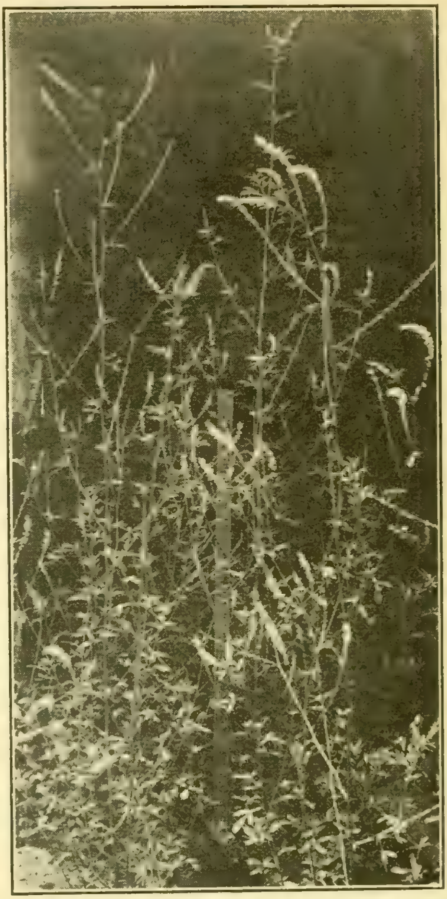
THE "PROMISED LAND;" "A LAND FLOWING WITH MILK AND HONEY."

In 1918 and 1919, I had considerable to say about the sunflower, a plant which promised to furnish not only honey but milk also, thus contributing to make our land "a land flowing with milk and honey." Well, so far as the *milk* is concerned I believe the sunflower is all that has been claimed for it. In many places it is grown by the acre for filling the silo; and when mixed with corn it makes a better cattle feed for milk, butter, and cheese than corn alone. But so far as the honey is concerned there does not seem to be very much of it, and the quality is nothing extra.

Well, friends, in all that talk about sunflowers I stupidly overlooked the fact that we have a plant already that not only furnishes the very best of feed for cattle and all other farm stock but furnishes more, and I think I might safely say better, honey than any other plant in the world. It is nothing more than our old despised sweet clover growing in such rank luxuriance along our highways, especially where we have crushed limestone roads. Now, my beekeeping friends, just hold your breath a minute while I tell you something that may surprise you. The A. I. Root Co. is now buying, bottling, and sending out something like 50 carloads of honey a year, or a carload a week we might say. Where does this honey come from? what is its source? Well, Mr. A. L. Boyden, who has charge of our honey business, astonished me by saying that all of *30 carloads* out of 50 are from sweet clover; and this sweet-clover honey is certainly as handsome and delicious—that is, to my notion—as any honey in the world. Well, now, since you have had several good "breaths" over what I have told you, just hold your breath once more.



The new annual sweet-clover plant that made a growth of 20 inches in 17 days.



The new annual sweet-clover plant that made a growth of 36 inches in 24 days, or 1½ inches a day.

On page 325 of our June issue, I told you about a photo showing a growth of the new sweet clover 20 inches high in only 17 days. At the left is the picture I had in mind when I said that.

When I planned to have another photo taken in about 2 weeks the wind was so unfavorable that the artist did not get a picture to suit him until June 8; and this picture it is my pleasure to give you on the previous page.

Below is a letter from our good friend the photographer:

> *Dear Mr. Root*:—The clover in the June 8th picture is 64 inches high. I think you will be interested to know that the honeybees were very busy with the blossoms the last day I was out. I tried to photograph the bees, but when the bees were right the wind blew, so I gave it up.
>
> I discovered a lone plant nearer your house, after I had taken the picture. This plant is also 64 inches high.
>
> Sincerely,
> Will S. Potter.
>
> Bradentown, Fla., June 9, 1920.

The seed for this sweet clover was sown March 11, and the picture was taken June 8, just 88 days from the time the seed was planted. Owing to the bad weather or something else the little plants were a long time in getting started. "Getting started" means letting that tap root shoot away down after fertility that ordinary plants never reach. Now take into consideration that this enormous growth was made at a time when we had some of the hottest weather in Florida, and at the same time some of the wettest weather. I noticed by the Bradentown paper that they had had some tremendous rains right where these annual sweet-clover plants were making that vigorous growth. Please note this enormous growth of a *legume,* over five feet in less than three months.

Now, who knows but that this new forage plant will, down in Florida, make its growth, say about as high as your head, any month in the year? I am planning to go back to my Florida home some time in October, and very likely my good friend Wesley will have some little plants ready for me by the time I get there. He is going to save the seed, and will be saving it when you get this; and this seed will be mailed to all applicants as before—especially those who were disappointed by by not getting seed earlier.

Later.—Since the above was written I have received from our nearest neighbor across the street a postal card as below:

> Dear Mr. Root:—I was over yesterday when Mr. Potter took the pictures of the clover. Two of the plants are 64 inches high or up to my chin, and the bees are working vigorously on the blossoms. If this plant will be for the beekeepers of Florida what the sweet clover is to the beekeepers of the North, it will be a bonanza. We are having watermelons and sweet corn and peaches now.
>
> Bradentown, Fla., June 9. E. B. Rood.

By the way, my neighbor Rood keeps quite a lot of very choice Jersey cattle. On receipt of the above I instructed him to get some of the best plants and submit to the sleek Jerseys and report. Very likely they will have to be given a little time to "acquire the appetite," as sweet clover is practically unknown in that region. His concluding sentence has given me the fever to get back to Florida once more, especially as Florida watermelons are just now, up here in the North, bringing not only $1.00 but some of the biggest ones $2.00 or more.

Just one word more about sweet-clover honey. Altho I did not suggest it in the proper place, so far as I can learn it is quite possible that sweet clover *even now* furnishes more choice honey for the market than all other plants combined. Years ago, when I kept up a catalog of honey plants, or plants bearing honey, I kept telling you that it would not pay to grow *any plant* just for honey alone; but now we have the greatest honey plant in the world, and, if I am correct, almost the greatest forage plant in the world, not only for the production of milk, butter, and cheese, but for the production of a fine quality of beef, mutton, etc.

BURLAP FROM SWEET CLOVER: STILL ANOTHER USE FOR THE "NOXIOUS WEED."

The following letter will, I am sure, be read with interest by all beekeepers:

> *Dear Mr. Root*:—I have been a reader of "Gleanings" for some time, and always read your articles with the greatest interest and therefore know that you like some "happy surprises" once in a while.
>
> I herewith enclose a piece of burlap made from sweet clover, as I know you are very much interested in the possibilities of sweet clover; but, probably, you knew before that sweet clover yields an enormous amount of fiber. Yours truly,
> G. Herman Peterson.
>
> Rt. 1, Box 4, Deerwood, Minn., May 18, 1920.

The sample of burlap is certainly all that could be desired for sacking or any other purpose. In fact, I think it would make a very nice blanket or lap-robe; but what impresses me most are the long fringes on the sample inclosed. When I tried to break one of them by pulling on it, it seemed to be about the stoutest piece of twine for its size I ever got hold of. Now, if sweet clover will make twine (possibly binders' twine), what is going to happen along that line in the future? The beekeepers can have the honey and the seed, and the twine and burlap factories can use the stalks; and the forage for feed ought to help largely to bring down the "high cost of living." Yes, I do remember hearing, years ago, that the stalks of sweet clover furnishes a valuable fiber.

Classified Advertisements

Notices will be inserted in these classified columns for 30 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued while they are in good standing.)

Wm. A. Hunter, C. H. Cobb, E. S. Robinson, Murray & Stone, Buckeye Bee Co., Garden City Apiaries, A. O. Jones & H. Stevenson, L. D. Caulk Co., W. A. Matheny, F. Coombs & Sons, R. V. Stearns, F D. Manchester, C C. Clemens Bee Supply Co., L. R. Dockery, S. T. Crawford, T. J. Talley, W. T. Perdue, Domestic Beekeeper, Lee & Wallin, Birdie M. Hartle, J. Tom White, H. L. Murry, Robt. B. Spicer, W. W. Boyer & Co. Savings Deposti Bank Co. are now advertising only every other month. They are in good standing.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey; in 60-lb. cans, at 22½c per lb. f. o. b. Brooksville. Sample 25c.
W. B. Wallin, Brooksville, Ky.

FOR SALE.—We have a very choice lot of white clover honey at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—We have a small part of our crop of white clover-basswood extracted honey left, packed in new 60-lb. cans, two to the case. Write for prices. D. R. Townsend, Northstar, Mich.

FOR SALE.—New crop White Haitian Honey, 30-gallon barrels, 19c per lb.; 60-lb. tins, 20c per lb. California Orange Blossom Honey, 60-lb. tins, 23c f.o. b. New York.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

HONEY AND WAX WANTED

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—Bulk comb, section, and extracted honey. Write us what you have and your price.
J. E. Harris, Morristown, Tenn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address so we can identify it immediately upon arrival, and make prompt remittance.
The A. I. Root Co., Medina, Ohio.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—Second-hand 60-lb. cans, 50c a case. I. J. Stringham, Glen Cove, N. Y.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

We can save you money on Cypress hives, frames, etc. Write for prices.
Sarasota Bee Co., Sarasota, Fla.

Good second-hand honey cans, 35c per case; 170-pound kegs at 25c each. How many?
J. E. Crane & Son, Middlebury, Vt.

FOR SALE.—8 10-frame hives with bees and empty beehives cheap. Write
Mrs. Albert Hoch, c/o D. Thiessen, Colony, Okla.

FOR SALE.—Root automatic extractor B. R. No. 15. R. T. Spencer, 214 North Cherry St. Lebanon, Ohio.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition at 50c per case.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

How many queens have you lost introducing? Try "The Safe Way," push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

FOR SALE.—Ten-frame standard dovetailed hives in lots of from one to fifty. Very cheap. Write for prices. Wm. Craig, Aitkin, Minn.

ROOT'S BEE SUPPLIES. — For the Central Southwest Beekeeper. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

FOR SALE.—12 Buckeye double-walled 10-fr. hives, nailed and painted, all complete except frames. Used two seasons, $2.50 each.
Frank Roberts, Dover Point, N. H.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

FOR SALE. — Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FRAME SPACERS.—The very best way to space frames in a hive, and space at exact distance, also space themselves. Easy to take out and put in. Never sticks. Plan and patterns for only $1.00.
M. F. Perry, Bradentown, Fla.

FOR SALE.—One 8-frame Root's automatic power honey-extractor; one honey pump, one gasoline engine. I will sell all together, or any one separately. Write for price.
Elmer Hutchinson, Lake City, Mich.

FOR SALE. — Good second-hand double-deck comb-honey shipping cases for 4¼ x 4¼ x 1⅞ sections, 25c per case, f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—60 10-frame supers used one season with drawn-out foundation free from disease and wired frames, 35c each; 600 Hoffman frames at 3c each; 40 Minnesota bottom-board reversible, at 50c each; 40 metal-top covers at 50c each. F. O. B. Spring Park, Minn. Mail check to

Paul Knechtges, 1664 Laurel Ave., St. Paul, Minn.

REAL ESTATE

For Quick Sale My Home,—with 117 acres of farm land, 20 acres planted to truck and farm crops, balance pasture and woodland. 100 rods from school and trunk roads. Well, general farm buildings on R. F. D., and phone line. Must sell. Price with crop, $2200.

Otto Scholze, Millston, R. D. 1, Wis.

FOR SALE.—20 acres in olives and oranges in frostless district, ¾ mile from paved highway, new 5-room bungalow with bath, solar hot water system, electric lights, electric irrigation plant, $700 per acre, terms. 100 colonies of bees and equipment, $1200, with place. J. V. Dewhurst, Ojar, Calif.

FLORIDA.—A gentleman farmer home on the river. Fishing and boating. 14 miles from Tampa on brick road. 15 acres good land, nice new bungalow, garage, stable, outbuildings, shade trees, flowers, shrubbery,small orange grove. Ideal bee location. Price, $5000. Owner moving to larger property. Photograph if desired.

Edmund J. Courtot, Owner, Sutherland, Fla.

WANTS AND EXCHANGE

EXCHANGE Italian queen for a small printing press or rifle, Wright.

B. O. Brown, Kingsport, R. D. 3, Tenn.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

BEES AND QUEENS

Finest Italian queens, Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens, $1.00 each.

W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E, A. Simmons, Greenville, Ala.

FOR SALE.—1920 Golden Italian queens, price list free Write E. E. Lawrence, Doniphan, Mo.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

When it's GOLDEN it's Phelp's. Try one and be convinced. Virgins, $1.00; mated, $2.00.

C. W. Phelps & Son, Binghamton, N. Y.

Simmons Strain, golden and three-banded queens; 1, $2.00; 6, $10.00. Also nuclei.

Allen R. Simmons, Claverack, N. Y.

FOR SALE.—Italian queens, three-banded untested, $1.25 each; 6, $7.00; 12, $13.00. Tested queens, $2.50 each. Robt. B. Spicer, Wharton, N. J.

FOR SALE.—Italian queens, mailed as soon as hatched. Safe arrival guaranteed, 1, 75c; 10, $6.00. Evan Jones, Franklinville, N. J.

FOR SALE.—Italian queens, three-banded and Goldens, untested, $1.25 each; 6, $6.50; 12, $13.00. Now ready. G. H. Merrill, Pickens, S. C.

FOR SALE. — Pure Italian queens, untested, $1.50 each; $15.00 per dozen. Tested, $2.50 each. Satisfaction guaranteed.

D. P. Barrett, Ann Arbor, R. D. No. 3, Mich.

FOR SALE. —My famous three-band Italian queens, one for $1.25; six for $7.00. From June 1 to November.

J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

FOR SALE. — Leather-colored Italian queens from Dr. Miller's breeder. Virgins, $1.00; tested, $1.50. July 1, 5, $6.00; 10, $11.00.

F. R. Davis, Stanfordville, Dutchess Co., N. Y.

FOR SALE.—Best three-banded Italian queens ready June 10. Untested only, one, $1.50; 6, $8.00; 12, $15.00. Particulars on request.

Ross B. Scott, Lagrange, R. D. No. 4, Ind.

FOR SALE.—QUEENS. Italian queens of excellent stock will be ready to mail June 1. Untested, $1.50 each; 6, $7.50; 12, $14.00.

J. D. Harrah, R. D. No. 1, Freewater, Oregon.

FOR SALE.—Leather-colored Italian queens, tested, until June 1, $2.50; after $2.00. Untested $1.25; 12, $13.00. Root's goods at Root's prices.

A. W. Yates, 15 Chapman St., Hartford, Conn.

FOR SALE.—Golden and three-banded queens, untested, April, May, and June delivery, $1.25 each; $12.50 per doz. Satisfaction.

R. O. Cox, Greenville, R. D. No. 4, Ala.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.

W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Golden queens. Orders filled in rotation. Untested, $1.10; selected untested, $1.50 each. Safe arrival.

Hazel V. Bonkemeyer, Randleman, R. D. 2, N. C.

BEES BY THE POUND. — Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

FOR SALE. — Hardy Northern-bred Italian queens, untested, $2.00 each; 6, for $11.00; select tested, limited number, $3.00 each after June 1.

Dr. C. E. Sheldon, Coeur d'Alene, Idaho.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.

C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Pure Italian queens, packages and nuclei. One untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.

Golden Star Apiaries San Jose, Calif.

Highest grade three-banded Italian queens. Virgins, 75c each; untested, each, $1.25; 6, $6.50; 12, $12.00; 50, $47.50; nuclei, $3.00 per frame, queens extra. No disease, and satisfaction guaranted. A. E. Crandall, Berlin, Conn.

PURE ITALIAN QUEENS.—Not the cheapest, but the best we can grow; bright yellow, with clean bill of health; sure to please; such as we use in our own yards. Untested, $1.25; $14.00 per dozen.
J. B. Notestein, Bradentown, Fla.

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.50 for 10; $1.10 each when 25 or more are ordered. Allan Latham, Norwichtown, Conn.

FOR SALE.—3-banded Dr. Miller and Walker's queens, after June 10 (am booked full until then), $1.25 each, 6 for $7.00, 12 for $13.00. Selects, 25c each higher.
Curd Walker, Jellico, R. D. No. 1, Box 18, Tenn.

FOR SALE.—Golden Italian queens, untested, $1.15; 6 for $6.50; 12 or more, $1.00 each; tested $2.00 each; select tested, $3.00 each; extra-select tested, $4.00 each. No bees for sale.
D. T. Gaster, Randleman, R. D. 2, N. C.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, $2.00; six, $8.00; doz., $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—Three-band leather-colored Italian queens. Safe arrival guaranteed. No disease. Hustlers, none better. 1, $1.00; 12, $10. Write for circular and prices on quantities.
J. M. Cutts, R. D. No. 1, Montgomery, Ala.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

DAY-OLD QUEENS at practical prices. Superior improved Italian stock. Mailed in safety introducing cages. Safe arrival guaranteed to any part of the U. S. and Canada. Send for circular. Prices, 1, 75c; 10, $6.00; 100, $60.00.
James McKee, Riverside, Calif.

BUSINESS-FIRST QUEENS.—Untested, $1.00 each; $11.00 per doz.; select untested, $1.50 each; $12.00 per doz.; tested, $2.00 each; select tested, $2.50 each; breeding queens, $5.00 and $10.00 each. Safe arrival guaranteed in the United States.
M. F. Perry, Bradentown, Fla.

We have enlarged our queen yard considerably. We can take care of orders better than ever, large or small. April 15 to June 1, untested queens, $1.25; tested, $2.50; untested, $115.00 per 100. After June 1, $1.00 each or $90.00 per 100. J. A. Jones & Son, Montgomery, R. D. No. 1, Box 11a, Ala.

ITALIAN QUEENS.—Three-banded, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, $1.25 each; 12 or more, $1.00 each. Send for circular.
J. H. Haughey, Berrien Springs, Mich.

QUEENS.—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, $2.00; six, $9.00; twelve, $16.80. After June 1 one, $1.50; six, $8.00; twelve, $14.00. Select tested, $3.00 each. Write for prices per hundred. Descriptive circular free. Hardin S. Foster, Dept. G. Columbia, Tenn.

FOR SALE.—Untested Golden Italian queens, $1.25 each; tested queens, $2.50 each. Satisfaction guaranteed.
J. F. Michael, Winchester, R. D. No. 1, Ind.

FOR SALE.—Earliest queen-rearing yard in Colorado. Young queens now ready. Tested Golden breeding queens a specialty. A. C. Stanley and E. C. Bird, 1421 Walnut St., Boulder, Colo.

"Those who think must govern those who toil;" for the busy bee man who must keep an efficient force always at his command in the hive there's no helper equal to Victor's Italian queens. Mated, $1.25 each; 6, $7.00; 12, $13.50.
Julius Victor, Martinsville, N. Y.

BOZZALLA LIGURIAN QUEENS.—Import direct from Italy, selected tested Italian queens, $3.50 each. Every queen comes from Enrico Bozzalla's Queen Rearing Apiaries to you direct. No risk, Safe arrival guaranteed. Remit to sole agent,
H. M. Stich, Riccartsbar Ave., Paisley, Scotland.

TESTED QUEENS. — Three-banded leather-colored Italians descended from the celebrated Moore strain. These queens are one year or less old, right in their prime. Price, $2.00 each. Safe arrival and satisfaction guaranteed. A few breeding queens, $5.00 each.
Elmer Hutchinson & Son, Lake City, Mich.

FOR SALE.—By return mail, three-banded leather-colored Italian queens from the very best honey-gathering strain, $1.50 each or $15.00 per dozen; tested, $2.00 each. You can buy cheaper queens elsewhere, but you can not get better queens anywhere. Delivery and satisfaction guaranteed. I have no more 2-lb. package bees for sale this season. Jasper Knight, Hayneville, Ala.

FOR SALE.—Italian queens. Prices for untested in June, $1.50 each; 6, $8.25; 12, $16.00; tested $2.50 each. After July 1, untested, $1.25 each; 6, $7.00; 12, $13.50; tested, $2.00 each; virgins, 75c each. Mismated queens replaced if returned in 30 days. Dead queens replaced if returned by return mail. Untested, ready to ship June 1 to June 10. R. B. Grout, Jamaica, Vt.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

1920 prices on nuclei and queens. Miller strain. Queens, untested, $1.50 each; $15.00 per doz.; tested $2.00 each, $22.00 per doz. One-frame nucleus, $3.00; two-frame, $5.00; three-frame, $6.50, without queens, f. o. b. Macon, Miss. We have never had any bee or brood disease here. Will have no queens except for nuclei until June 1. Safe arrival and satisfaction guaranteed.
Geo. A. Hummer & Sons, Prairie Point, Miss.

ITALIAN QUEENS.—The Old Reliable three-banded Italians, the best all-around bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, $1.50; 6, $8.00; 12, $15.00. Tested, $2.25; 6, $12.00; 12, $22.00. Select tested, $3.00 each. Descriptive circular and price list free.
John G. Miller, 723 C St., Corpus Christi, Texas.

MISCELLANEOUS

FOR SALE.—Guinea Pigs. Brood sows, $2.50. Young sows, $1.50. Males, $1.00. Pleasant Hill Caviery, 1629 E. Florida St., Springfield, Mo.

FOR SALE.—1[illegible]0 shares of Aluminum Honeycomb Co. stock, at $50.00.
Frank M. Batty, Oxnard, Calif.

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

HELP WANTED

WANTED.—One experienced, man and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted. W. A. Latshaw Co., Clarion, Mich.

The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

NEWMAN'S ITALIAN QUEENS

Bred from the best. No disease. Satisfaction and safe arrival guaranteed.
Untested, $1.50; 6, $8.00; 12, $15.00. Select Untested, $2.00; 6, $10.00; 12, $19.00.
Circular free.

A. H. NEWMAN, - - MORGAN, KY.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

Hand - Moore Queens

How many of you, let me see, have tested out the Hand-Moore bee? Our bees get honey by the ton, and honey's what brings the mon.' So if you want your honest share, and are not content with just the tare, buy Hand-Moore queens, that's what I say, and do it, yes, and right away. Untested only, $1.50 each; 6, $8.00; 12, $15.00.

W. A. Latshaw Co., Clarion, Mich.

Mott's Northern-bred Italian Queens

Untested, $1.00 each; $12.00 per dozen. Select untested, $1.25 each; $15.00 per dozen.
Select guaranteed, pure mated, $1.50 each. Select tested, $2.50 each.
Plans "How to Introduce Queens, and Increase," 25c

E. E. Mott, - - Glenwood, Mich.

Leininger's Strain ITALIANS

have a record of 35 years. Queens ready in June. Untested, each, $1.75; 6, $8.50. Tested, each, $2.50; 6, $14.00. Select breeders, $15.00 each. Every queen guaranteed.

Fred Leininger & Son, Delphos, O.

INDIANOLA APIARY

Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, $1,00; Tested, $1.50. Nucleus, $2 per frame, queen extra.

J.W.SHERMAN,VALDOSTA,GA.

QUEENS

Golden and three-band Italians. The kind that fill from two to four supers.
Untested, $2.00 each; $11.00 for 6; $45.00 for 25. No discount for 50 or 100 lots. Tested, $3.00 each; $16.00 for 6. Send orders for queens as early as possible.
Full colonies (bees and queen) $12.00 and $15.00 for 8- and 10-frame Root Co. hives.
S. C. R. I. Red eggs for hatching (280 egg trapnested strains) $2.50 per 15. $12.00 per 100.

MISS LULU GOODWIN, Mankato, Box 294, Minn.

Established 1885

ALWAYS ON TOP

Write us for catalog.

BEEKEEPERS' SUPPLIES

The Kind You Want and The Kind That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co's brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

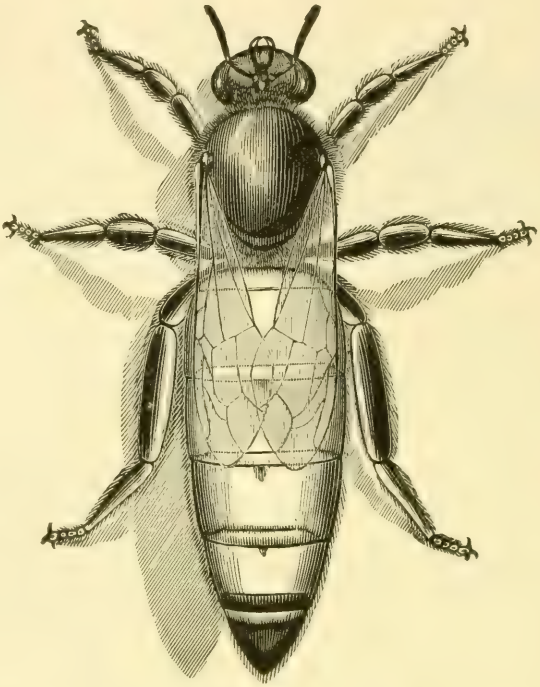
MICHIGAN-BRED QUEENS—THREE-BANDED ITALIANS ONLY

TESTED DISEASE-RESISTERS

PRICES	June 15 to July 15			July 15 to Oct. 1			
	1	6	12	1	6	12	100
Untested	$1.50	$8.00	$15.00	$1.30	$7.50	$13.50	$110.00
Select Untested	1.75	9.00	16.00	1.60	8.00	14.00	115.00
Select Tested any time after June 20				3.00	16.00	29.00	
Select Day-old Virgins after June 1				.60	3.50	6.50	50.00

D. A. DAVIS, 216 GREENWOOD, BIRMINGHAM, MICHIGAN

ROOT QUEENS



Highest Quality

Large Quantity

Why Order Root Queens

Our queens are bred by as skillful and experienced queen-breeders as can be found in the United States. There are very few places where queens are reared under as favorable conditions as in our own Ohio queen-rearing yards in midsummer. The strain is proved and of the highest quality. We guarantee that better queens than ours cannot be bought anywhere.

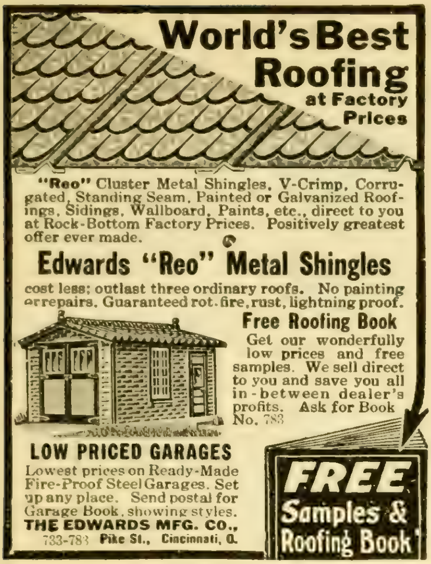
OUR JULY PRICES:

1 Untested Queen	$ 2.00
6 Untested Queens ...	11.40
12 Untested Queens ...	21.60
24 Untested Queens ..	$40.80
48 Untested Queens ..	76.80
100 Untested Queens and upwards—special prices quoted.	

Inquiries as to tested or breeding queens invited. The demand for these often exceeds our supply. So order well in advance.

Write or wire when deliveries are wanted. We are producing in large quantities this season, and with advanced information as to the wants of our customers we shall at times be able to quote unusually attractive prices on large quantities. Make your plans and order NOW for your August needs.

The A. I. Root Company, Medina, Ohio



World's Best Roofing

at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 783

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.,
733-783 Pike St., Cincinnati, O.

ATTENTION

Pacific Northwest Beekeepers

We handle a full line of supplies for beekeepers, including Italian Queens. Write us your requirements and for our catalog B. It's free.

Spokane Seed Company, Spokane, Wash.
904 First Avenue

MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and	BECAUSE—Only Root's Goods are sold.
Efficient	It is a business with us—not a side line.
	Eight mails daily.
Service	Two lines of railway.

If you have not received 1920 catalog send name at once.

"Special Crops"

A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. $1.00 per year. Sample copy 10c. Address

Special Crops, Box G, Skaneateles, New York

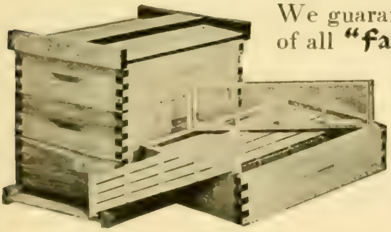
ALWAYS GOOD QUEENS

I furnish the A. I. Root strain of resistant queens that produce as good as the best of honey-gathering leather-colored workers.
A trial will convince you.

UNTESTED—$1.50 each; - - - - - 25 or more, $1.40
TESTED — $2.50 each; - - - - 25 or more, $2.25
SELECT TESTED, $3.00.

A. J. PINARD, MORGAN HILL, CALIFORNIA

Safe Arrival Guaranteed by "falcon"



We guarantee the safe arrival and absolute satisfaction of all **"falcon"** queens and bee supplies bought from us. Nor does our service end after the goods reach you.

Keep in touch with us at all times and in all seasons; we are equally interested in your results with **"falcon"** articles, as in all your beekeeping needs.

Write for Our Red Catalog

W. T. FALCONER MANUFACTURING CO.
Falconer (near Jamestown), N. Y., U. S. A.
"Where the best beehives come from"

QUEENS OF QUALITY

FARMER'S QUEENS SPEAK FOR THEMSELVES.

Mr. Beekeeper, why not get a good queen while you are buying? Farmer's queens produce workers that fill the supers quick with honey that is most delicious to eat. They are bred for honey production strictly. Shipping season is here; now is your time to head your colonies with a good queen; one that will keep the hive chock-full of bees at all times, makes the biggest yields of honey.

PRICES FROM JUNE TO SEPTEMBER.

	1	6	12	100
Untested	$1.50	$7.50	$13.50	$1.00 each
Select untested	1.75	9.00	16.50	1.25 each
Tested	2.50	13.00	24.50	2.00 each
Select tested	4.00	22.00	41.50	3.35 each

We guarantee everything we sell; you take no risk when you deal with us; safe arrival and satisfaction is our motto; customer is the judge. Reference: Bank of Ramer, Ramer, Ala.

THE FARMER APIARIES, - - - - - RAMER, ALABAMA

"Where the Good Queens come from"

QUALITY QUEENS AT QUANTITY PRICES

BREED THREE-BAND ITALIANS ONLY

PRICES UNTIL NOVEMBER 1:

	1	6	12
Untested	$1.50	$8.00	$14.00
Select Untested	1.75	9.00	16.00
Select Tested	2.75 each		

Now is the time to lay the foundation for next year's honey crop by heading those colonies with YOUNG VIGOROUS QUEENS. Let's make each and every colony 100% efficient. Satisfaction and safe arrival in U. S. and Canada.

HERMAN McCONNELL -:- -:- -:- -:- ROBINSON, ILLINOIS

THAGARD'S ITALIAN QUEENS

Bred for Quality. My Three-band queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

After July 1st.

	1	6	12
Untested	$1.50	$7.50	$13.50
Select Untested	1.75	9.00	16.00
Tested	2.50	13.00	24.00
Select Tested	5.00	22.00	41.50

No reduction in prices after July 1st. as stated in circular.

V. R. THAGARD -:- -:- GREENVILLE, ALABAMA

1920 QUEENS 1920

A colony of bees with a poor queen is worth the hive and fixtures. A colony of bees with a good queen has no limit in value, the honey flow alone being the determining factor. I am using my thirty-five years of beekeeping and queen-rearing experience to produce the best that can be produced, and sell at a figure that will sustain the high quality of my queens.

PRICES

One, $2; three, $5.50; six, $10; twelve, $19. All amounts over one dozen, $1.50 each. I sell only untested queens and make a specialty of this line. I select no queens, but try to have them all so good that there is little chance for selection. 1920 circular now ready. Season opens April first.

P. C. CHADWICK KERN COUNTY DELANO, CALIF.

SHADE TREES

SHADE Trees are as necessary on the lawn as furniture in the house. And the best are so inexpensive that all can afford them. We have sturdy Norway Maples, Oriental Planes, Oaks, Elms and practically all desirable varieties. Harrisons' Evergreens and Shrubbery transform plain dooryards into fine lawns. *Write for catalog today.*

Harrisons' Nurseries

"Largest growers of fruit trees in the world"

Box 65 Berlin Maryland

QUEENS OF

MOORE'S STRAIN

OF ITALIANS

Produce Workers
That fill the super quick
With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens $1.50; 6, $8.00; 12, $15.00
Select untested..$2.00; 6, $10.00; 12, $19.00

Safe arrival and satisfaction guaranteed. Circular free.

J. P. MOORE, Queen Breeder
ROUTE 1 MORGAN, KY.

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck
The Comb-foundation Specialist
Augusta, Kansas
Established 1899

Now that the honey season is here in full blast—

Now that minutes of the long summer days are, to the bees, what pennies are to dollars—

You will want your supplies shipped over the shortest possible route, with the least possible delay. We have a full line of the goods needed to make the season a success, and we will hurry your order along with all possible speed.

Do you realize, Mr. Honey Producer, that we are located in one of the best shipping centers of the country, and that we can make shipment over any one of nine trunk lines to your very door?

And that we are anxious to do all we can to help the bees coin each minute? And you every possible dollar? Use us.

The A. I. Root Company of Iowa,
Council Bluffs, Iowa

More About Luther Burbank.—Cont'd from p. 411.

one fault, they are entirely without fragrance.

When I was tying them to stakes a few days ago—many of the great plants I cannot reach around—I thought, "How I wish Mr. Burbank would bestow fragrance on the larkspur," and then I came into the house and read in one of his books of a larkspur which he had greatly increased in size and given a delightful fragrance. You may be sure I shall order some seed for next year, if it is on the market.

On reading this over my official censor, married to me, suggested that if Mr. Burbank had retained his interest in bees—he used to keep them years ago—he would by this time have bred a red clover in which the bees could easily reach the nectar. Now I wonder whether he would have changed the clover or the bees. A man who can create a thornless blackberry might have bred a race of bees with long proboscis and no sting at the opposite end, and possibly he would have given his pets beautiful wings like those of the butterfly.

Now, please don't ask me to make copy of Mr. Burbank again; at least, not until after I have been able to take advantage of his cordial invitation to "come again" which I hope to be able to do some time next year.

In the meantime it is pleasant to remember that in sunny California a great and wise man is working with a skill and knowledge, which only he has, to improve and increase the food supply, to beautify the flowers, and to make this world a better place for all of us.

NOTICE.—Prices on Quirin's queens as given in June issue was an error, correct prices given below.

QUEENS!

Quirin's Improved Superior Italian Queens. They are Northern Bred and Hardy. Over 20 Years a Breeder.

PRICES	Before July 1st 1	6	12	After July 1st 1	6	12
Select untested - -	$1.50	$8.00	$15.00	$1.00	$5.50	$10.00
Tested - - - - - -	2.00	10.00	18.00	1.50	8.00	14.00
Select tested - - -	2.50	14.00	25.00	2.00	10.00	18.00

BREEDERS $5.00 each. If wanted in a two-frame Nucleus, add $5.00. No bees sold except where a breeder is wanted in a nucleus.

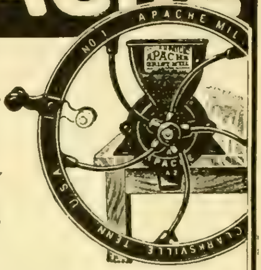
Safe delivery guaranteed; all grades of queens now ready to mail in reasonable quantities.

Send for testimonials. Orders booked now

H. G. Quirin, the Queen-breeder
Bellevue, Ohio

This Ball Bearing
APACHE
Grist
Mill

PREPAID FOR ONLY
$8.00



FEED the hopper, turn the wheel, and enjoy making your own wholesome whole wheat or graham flour, old-fashioned corn meal, rye flour, chops and hominy, and *bring down living cost.* Best coffee and spice grinder. If you have poultry, grind your chicken feed, save feed money and get more eggs.

Apache grinding plates of special mixture iron made to give longest wear. Steel ball bearings make it only a boy's job to run it. Send money or check today. Satisfaction guaranteed. For the present we can make prompt delivery. So don't delay.

A. H. PATCH, Inc., Clarksville, Tenn.

The Apache Grist Mill is companion to the Black Hawk Corn Sheller, famous for 35 years for its "Can't Wear Out" Guarantee.

In NEW YORK

OUR NEW OFFICES AND WAREHOUSE ARE NOW NEWLY AND PERMANENTLY LOCATED IN LARGER AND BETTER QUARTERS OWNED BY OURSELVES, AT

23 Leonard Street

THE A. I. ROOT CO.

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** THE BEST LIGHT CO. 306 E. 5th St., Canton, O.

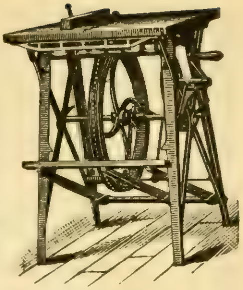
BARNES'
Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
546 Ruby Street
ROCKFORD, ILLINOIS



BEE SUPPLIES IN DIXIE

Dependable Goods with prompt service. Save time and transportation costs.

L. W. Crovatt, Savannah, Ga.
Box 134.

"QUEENS OF QUALITY"

3-band Italians only. Our breeding queen for this year comes from an outyard that averaged 110 lbs. last year, this particular colony storing 150 lbs. Queens of this strain are easily worth double what we are selling them for. Untested $1.50 each. Circular.

J. I. BANKS, DOWELLTOWN, TENN.

I. F. MILLER'S STRAIN

Italian Queen bees for sale. Northern-bred, for business from my best, *Superior Breeders;* gentle, roll honey in, hardy, winter well, not inclined to swarm, three banded. Queens a specialty, twenty-six years' breeding experience. Satisfaction guaranteed. Safe arrival in U. S. and Canada.

Untested .. $1.40; 3, $3.75; 6, $7.00; 12, $13.00
Select Unt.. $1.65; 3, $4.50; 6, $8.50; 12, $16.00

I. F. MILLER, Rt. No. 2, BROOKVILLE, PA.

PATENTS Practice in Patent Office and Court
Patent Counsel of The A. I. Root Co
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

Pennsylvania Beekeepers.....

Send to Prothero for It

Distributor of Root's Goods for State

Standard Hives
Buckeye Hives
Hoffman Frames
Sections
Foundation, Etc.

Immediate Shipments by Freight, Express, or Parcel Post. No Embargoes.

John N. Prothero, Dubois, Pa.
Formerly Prothero, Bailey & Goodwin
Jobber of Root's Goods for 20 Years

E. D. Townsend & Sons, Northstar, Michigan

Expect to harvest their usual crop of superior quality of extracted honey this season. As usual, it will be left on the hives until some time after the flow from clover is over before extracting. This will ensure a superior quality of honey, altho we will not get as many pounds in the aggregate. Then it will be put into new 60-lb. cans. In fact, our 40 years' experience in honey production is ample proof that this crop will be as good as or better than any other not produced with such painstaking care. If in need of a fine quality of extracted honey say how much you can use and we will be pleased to quote you a price, as soon as ready for the market, which will be the last of this (July) month.

WHEN YOU THINK OF BEEKEEPERS' SUPPLIES

THINK OF INDIANAPOLIS

We carry a complete line of Root's goods and we solicit your trade. Our slogan: Courteous treatment and prompt service. Catalog for the asking.

THE A. I. ROOT COMPANY (Indianapolis Branch) 873 MASS. AVE.

Lewis Bee Supplies—Dadant Foundation

A full line of supplies for the practical bee men at your command. Additional information to beekeepers gladly supplied upon request.

A Post Card Will Bring Our Catalog---Write Dept. C.

Western Honey Producers -:- Sioux City, Iowa

DOLL SAYS

don't invite Disappointments by delay in ordering your Honey Containers. Make sure of having all the Cans and Bottles you will need, by ordering them NOW. I am splendidly prepared to fill all orders for Friction Top Cans of 3 lbs. to 10 lbs. capacity—5-gallon Square Cans—and ½-lb. to 3-lb. white flint glass Screw Top Honey Bottles. Standard-grade goods, at prices that will interest you.

AN EASY WAY TO SAVE MONEY

You can save 15 per cent to 20 per cent on the cost of your Honey Cans and Bottles this year, by ordering them from DOLL—and instructing us to ship direct from factory to you.

I am also ready to make prompt shipments of anything wanted in the way of White Pine Hives, supers, extractors, Foundation, and other Supplies—none better to be had in either Style, Quality or Construction.

BE ready when the Honey begins to flow, by GETTING ready NOW.

Be sure to get my price quotations before ordering this year's Supplies.

P. J. DOLL BEE SUPPLY CO.

NICOLLET ISLAND MINNEAPOLIS, MINN.

HERE THEY ARE, MR. BEEKEEPER, AT NEWARK

Wayne County, New York, ready to answer your call, the best of everything ! !

Just Read This List

Lewis Beeware, Sections, Shipping Cases, Frames, Hives, Hershiser Wax Press, and other supplies.

Dadant's Unexcelled Foundation, all standard weights and sizes. Also the Electric Wire Imbedder.

Bingham Uncapping Knives, including steam-heated with oil stoves and generators.

Bingham Smokers, all sizes, with genuine leather bellows.

Root's Extractors, all sizes of hand and power Machines.

Bee Books written by all leading authors in beedom.

All Sizes of Friction-top Pails and also 60-pound Cans, new and second-hand. Also Cement-coated Nails for nailing beehives and supplies.

All-sized Spools of Tinned Wire, Bee Brushes, Feeders, Queen-rearing Cages, Bee Gloves, Capping Melters, and all practical supplies you will need.

A Market for your Honey or Wax, and a plant to render your Old Combs and Cappings.

Over 1,000 Beekeepers took advantage of this Service Station at Newark in 1919, for the first time. Now *all together* for a greater 1920.

New Catalog Free, and Our Discounts Will Save You Money. Address

The Deroy Taylor Co., -:- Newark, Wayne Co., New York

SELL YOUR CROP OF HONEY

TO

HOFFMAN & HAUCK, INC.

WOODHAVEN, N. Y.

NO LOT TOO LARGE OR TOO SMALL FOR US TO HANDLE

Mail Sample of Extracted, State Quantity and How
Packed and We Will Make You Our Best Offer

CONTAINERS FOR YOUR CROP

All Sizes, Glass or Tin

2½-lb. Pails, per case of 24	$1.80 each	Crates of 100	$7.00
5 -lb. Pails, per case of 12	1.65 each	Crates of 100	10.70
10 -lb. Pails, per case of 6	1.35 each	Crates of 100	17.00
White Flint Glass Quart Jars (3 lbs. honey) with gold lacquered screw caps, per case of 12			1.10
5-Gallon Tins, used, good condition, 2 tins per case			.60

HOFFMAN & HAUCK, Inc. -:- -:- WOODHAVEN, N. Y.

What do you need in the line of Supplies?

Let us help you out.

You are almost out of sections, foundation, or some other supplies, and you will want us to rush them through.

We are very busy, but will do the best we can for you.

If 1 or 2 lbs. of foundation, or small quantities of sections, order by MAIL.

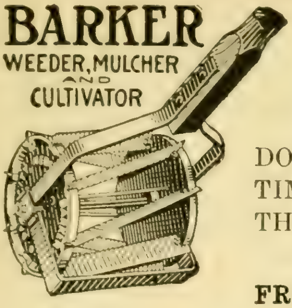
Veils
Are
Smokers
You
Tools
Going
Hives
to
Supers
Syracuse
Sections
for
Foundation
Supplies?
Extractors

We are in the market for beeswax.
Write us for prices.
Cash or trade.

We are ready to supply you with shipping cases, pails and jars.

Write us for quotations.

F. A. Salisbury, 1631 W. Genesee St., Syracuse, N. Y.



Weeds and Mulches

In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER MANUFACTURING CO.
Dept. 10 David City, Nebraska

BARKER
MFG. CO.
Dept. 10
DAVID CITY, NEB.

Gentlemen. — Send me postpaid your free book and Factory-to-User Offer.

Name ____________________

State ________ Town ________ R. R. No. ________ Box ________

QUEENS

FROM SELECT BREEDING

Twenty Years of Experimenting. We have nothing but the very best.

3-Band Only

Price Cash With Order
Before July 1st

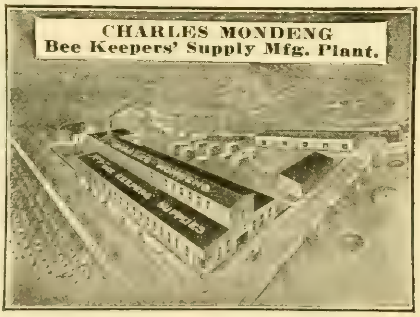
Untested	$1.50
Selected	2.25
Tested	3.00
Selected	3.50

Orders filled in rotation.
Write for prices in large quantities,

Did you get what you were looking for when you bought your last year's Queens? If not, try one that will please you. My queens are reared on a new system, large and prolific, surpassed by none but superior to many.

F. M. RUSSELL
ROXBURY, OHIO R. F. D. No. 2

BEE SUPPLIES



The largest and oldest Bee Supply manufacturer in Minnesota can offer you **bee ware** that will keep that "satisfied smile" on your face. Excellent quotations given on frames, spacing or unspacing. Send for my 1920 Catalog and Price List. **Think** it over and in thinking **be wise** and save money by placing your orders **before** the rush is on. *Will Take Beeswax in Trade at Highest Market Prices.*

CHARLES MONDENG
146 Newton Ave., N. Minneapolis, Minn.

Right Prices Prompt Shipment Quality Goods

"Thru Your Success We Prosper."

Do you need any Bee Supplies or cans and cases? We have a big stock of both. Altogether we have shipped twenty full carloads of Bees, Bee Supplies and Honey Containers this year. Let us count your business in on the big total! We can handle your honey crop to your satisfaction. Write us today.

"He Profits Most Who Serves Best."

The Foster Honey and Mercantile Company

Boulder, Colorado

Queens Bees by the Pound Queens

The rush of our bee-shipping season will practically be over by July 1st; we will then be in position to take care of your QUEEN orders.

Just received a picture from a party showing a colony built up from about 2 pounds of bees and a queen last spring, 1919, and then weighed 330 pounds gross; others in the yard did better than that one. We have had colonies here gather 400 pounds spring crop.

A party wrote from Chicago: "The shipment of bees was received on May 7th this year, hived same day; did not examine until 18th, when we found all queens accepted and they had laid in three frames. We greatly appreciate receiving such good grade of bees and hope to favor you with larger orders in the future." Another from Nebraska: "Wish to tell you how well pleased I am with the business done with you; some of the 50 packages had less than 100 dead bees in them. Those queens of yours are the best uniform QUEENS I have ever received. What is your price on 200 2-pound pkgs. with queens for spring 1921?" Our QUEENS are hardy gentle Italians; they grow bees that fill the supers. GUARANTEE safe arrival and satisfaction on QUEENS. With my method of feeding can ship bees successfully in July and August. Get a few packages and build them for the fall flow or winter. Send for FREE Circular giving reference, prices by Parcel Post, Nuclei, Guarantee, etc. Twenty years a beekeeper.

Advertising, labor, and sugar have all advanced, yet we quote Bees and Queens July 1st balance of the year as follows:

	1	6	12	50	100
Untested Queens	$1.50	$7.50	$13.50	$48.00	$95.00
Select Untested Queens	1.65	8.25	14.85	52.80	104.50
Tested Queens	2.50	13.50	27.00	110.00	
Select Tested Queens	3.00	16.20			

1-pound pkg. Bees .... $2.40; 25 or more $2.16 each
2-pound pkg. Bees .... 4.25; 25 or more 3.83 each
3-pound pkg. Bees .... 6.25; 25 or more 5.62 each

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALALLEN, TEXAS

E. B. AULT, Prop.

A RED LETTER DAY IN CONCRETE TOWN
CONCRETE
MAIN STREET
OK
DOC
STOP GO

That Sign for Your Apiary

SHOULD BE MADE THIS SPRING!

We will mail you on application a small folder on how to make your own signs by using our all-weather-proof burned clay letters. They can be used on buildings, walks, lawns or roadside.

Write for a "Red Letter Day in Concrete Town"

UNITILE
REGISTERED TRADE MARK

The Unitile Co., Columbus, Ohio
Dept. B

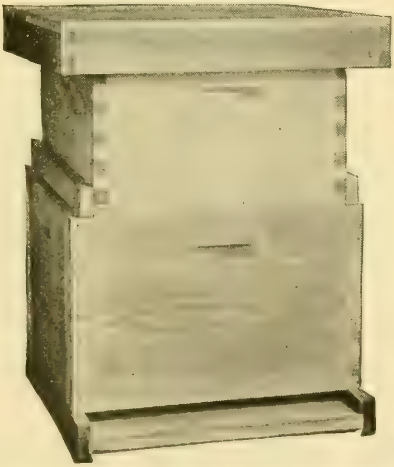
Modified Dadant Hive

Your present brood equipment can be put above the Modified Dadant hive used as full depth supers.

Features are: Deep frames, large one-story brood nest, frame space ventilation, excellence in wintering, swarming easily controlled.

Glance at this illustration to compare this hive with "Standard" Langstroth hive.

You can get 40 per cent greater brood-comb area than in the "Standard" ten-frame Langstroth.



Modified Dadant Hive Features.

1. Eleven frames, Langstroth length, Quinby depth.

2. Frames spaced 1½ inches for swarm control.

3. Extracting frames 6¼ inches deep.

4. Dovetailed body, regular reversible bottom and metal roof cover with inner cover.

5. Langstroth "Standard" equipment easily used with this hive.

For free booklet write any distributor of Lewis "Beeware," or to

G. B. Lewis Company - - - - - - Watertown, Wisconsin
Dadant & Sons - - - - - - - - - - - Hamilton, Illinois

ITALIAN BEES AND QUEENS

We are prepared to give better service in every respect than we have ever given in Bees and Queens and supplies

UNTESTED QUEENS

To June 15th		After June 15th	
1	$1.50	1	$1.25
12 or more	1.25	12 or more	1.00

TESTED QUEENS

To June 15th	$3.00	After June 15th	$2.00

BEES

1-pound packages	$3.00	2-pound packages	$5.50

We will furnish one comb filled full of brood with one pound of bees for $5.50, no queen. You are almost sure that these will reach you in perfect shape. You get a 50c comb; they will build up much quicker than a 2-pound package. There is no danger of their swarming out.

NUCLEI

1-frame	$4.00	2-frame	$7.00	3-frame	$9.50

No queens included at above prices.
Nuclei are on good combs, full of brood with plenty of bees.

FULL COLONIES

We can furnish, and can ship on date specified, full colonies of bees in new hives, good comb, and good strong colonies with **Tested Queens:**

8-frame	$18.00	10-frame	$20.00

DR. MILLER'S QUEENS

Let's make this a Miller queen year. Dr. Miller has furnished us breeders from his apiaries, and we are the only ones that he furnishes breeders to. In these queens you get the fruits of the foremost beekeeper of the world. We pay Dr. Miller a Royalty on all queens sold.

To June 15th		After June 15th	
1	$2.00	1	$1.50
12 or more, each	1.60	12 or more, each	1.25

We carry a full line of Root's supplies, including the new Root-Weed foundation, Prompt Service.

THE STOVER APIARIES

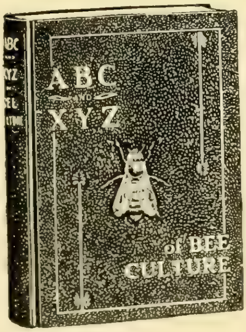
Successors to
THE PENN COMPANY
Penn, Miss.

MAYHEW, MISS.

A GREAT SALES RECORD
—OF—
A GREAT BEE BOOK

Here is a record for the sale of a standard class book, not often equaled in any field, and never approached before by any bee book:

On July 1, 1919, one year ago, this Company completed the printing and binding of 10,000 of the 1919 edition of the



On May 1, 1920, these 10,000 copies of the world's greatest bee book had been exhausted. A new issue of the 1919 edition is now completed, and we are again filling orders for the same. It is the indispensable book to every up-to-date beekeeper everywhere.

The A. I. Root Co.
Medina, Ohio.

A QUESTION AND AN ANSWER

When they had unpacked their first carload of Lewis "BEEWARE," a concern who had never had our goods before was written to as follows:

OUR QUESTION

Watertown, Wisconsin,
May First, 1920.

Kanawha Seed Company,
617 Virginia Street,
Charleston, W. Va
Gentlemen:—

When it becomes a part of our duty to go out and guarantee on our personal word the quality of Lewis "Beeware," we feel it is also our duty to make sure that the customer is satisfied. Do you feel that the carload of Lewis "Beeware" which you have received comes up to the standard of quality which you were assured it would reach?

Yours very truly,
G. B. LEWIS COMPANY.

THEIR ANSWER

Charleston, W. Va.
May 5, 1920.

G. B. Lewis Company,
Watertown, Wisconsin.
Gentlemen:—

Answering your favor of first inst. Beg to state that the quality of Lewis "Beeware" is fully up to our expectations, and, furthermore, we believe that the workmanship thereof is a little better than usually found in any other make of beekeepers' supplies ever handled by us.

Yours very truly,
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AUG 2 - 1920

Gleanings in Bee Culture

When bees and blossoms, men and weather,
Work for honey, and work together.

VOL. XLVIII **August, 1920** NUMBER 8

WAREHOUSE JUST BEING COMPLETED TO

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Let us store or sell it for you.

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Full Line of

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Now for the 1920 Honey Crop

We will buy it, both Comb and Extracted

We want especially White Orange, White Sage, White Clover, Basswood, Raspberry

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Second-hand 60-lb. Cans

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HONEY CANS AND PAILS

We can supply them in small and large lots. Try our service.

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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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A. I. ROOT, Editor Home Dept.
IONA FOWLS, Assistant Editor
H. G. ROWE, Managing Editor

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25 per cent Discount

on Shipping Cases --- as long as our stock lasts---Flat cases---2-inch glass ---24 sections each---25 to the crate

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Lewis Section Squeezers..	$4.80 each		$3.60 each	
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Best Prices Paid for Honey

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HONEY *HONEY*

HONEY WANTED

Send us a sample of your honey if extracted, state how put up and your price. We are also buyers of comb, can use unlimited quantities if quality and price are right. We remit the same day goods are received.

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HONEY MARKETS

August is an important month in the honey market. The new crop at this time is coming out, and first prices are regarded as indicating to a considerable extent what the honey market of the new season is to be.

Special Telegraphic Reports.

To get an impartial forecast of the market, if possible, Gleanings on July 17 asked for telegraphic reports from a number of honey-producers' associations thruout the country, and received the following replies to this question: "For what price do you think producers warranted in holding their honey?"

Los Angeles, Calif., July 18.

It is our judgment that the prices as named by the Exchange of 20 cents on white orange and white sage, 18½c light amber sage, 17½c light amber alfalfa, are meeting with the approval of the trade, as evidenced by the fact that we are now entirely sold up on orange honey, and all our stocks of sage and alfalfa are very materially reduced. Some nice export business has substantially increased the movement of our crops. When we named prices above mentioned, it was done after carefully analyzing the general financial condition, also the forward situation on sugar, and, of course, many other points were taken into consideration in arriving at what we considered most equitable prices.—C. E. Millspaugh, Manager California Honey Producers' Co-operative Exchange.

Waycross, Ga., July 21.

Dixie honey gone at 18 cents, 20 cents and 22 cents. None to hold. J. J. Wilder, President of Georgia Beekeepers' Association.

Caldwell, Ida., July 18.

We believe 20 cents an equitable price for extracted honey of quality we produce; comb, $6.50 for fancy, $6.25 for No. 1, $6.00 for No. 2.—P. S. Farrell, Manager of the Idaho-Oregon Honey Producers' Association.

Valparaiso, Ind., July 18.

Twenty-five cents wholesale per 60-pound can.—E. S. Miller, Chicago-Northwestern Beekeepers' Association.

Akron, N. Y., July 18.

Crop less than 30 per cent of normal. Producers ought to get at least 27 cents for white extracted honey in a jobbing way. No data on comb honey.—W. F. Vollmer, Western New York Honey Producers' Association.

Denver, Colo., July 18.

No less than $7.50 for No. 1 comb and 20 cents for white extracted in carload lots. New prices of bee supplies would, however, justify a much higher price for honey.—Frank Rauchfuss, Colorado Honey Producers' Association.

East Lansing, Mich., July 18.

I find that there is a tendency on the part of the beekeepers to hold their honey for a higher price than was paid last year. In talking with a considerable number of beekeepers I find that they are of the opinion that extracted honey of good quality will sell at from 24 to 28 cents and possibly as high as 30 cents. There is practically no honey changing hands at this time and therefore no market is established.—B. F. Kindig, State Apiary Inspector, Michigan Honey Producers' Association.

San Antonio, Tex., July 18.

Producers of light grades are getting 18 to 20 cents; amber 16 cents. Do not advocate holding for certain price. Think honey should move as market demands. Advantage of sugar situation by beekeepers holding for advanced price would be as wrong as any other species of profiteering.—E. G. Le Stourgeon, President of Texas Honey Producers' Association.

U. S. Government Market Reports.

HONEY ARRIVALS JULY 1-14.

MEDINA, O.—52,400 lbs. from California arrived.

SHIPPING POINT INFORMATION, JULY 14.

LOS ANGELES, CALIF.—Moderate wire inquiry, demand moderate, movement limited, market dull, little change in prices. Carloads f. o. b. usual terms, per lb., extracted, white orange and white sage 19-20c; light amber sage 17½-18½c, light amber alfalfa 16½-17½c; Hawaiian light amber 15½c.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS

(In many markets the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, we use the term "wholesale carlot receiver" to designate carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Quotations are for July 14.)

BOSTON.—No arrivals reported since July 1. Demand and movement light, market steady, very few sales. Sales to jobbers, extracted, per lb., California white sage and orange, mostly 26c. Comb, New York, 24-section cases, white clover, $8.25-$8.50; Vermont, 20-section cases white clover $7.50.

CHICAGO.—No carlot arrivals, supplies light, demand and movement good, market steady. Sales to jobbers, per lb., extracted, Californias, Colorados, and Ohios, white, 21-22c, light amber 20c, dark amber 18½-19c. Comb, supplies practically exhausted. Beeswax, 15 tons African arrived. Domestic receipts light, demand and movement moderate, market weak due to heavy offerings of imports. Sales to jobbers, Idahos, Californias and Colorados, light 43-44c, dark 40c, African 33-35c.

CINCINNATI—1 car California received. Supplies light, practically no demand or movement, no sales reported, all honey being bottled. Beeswax, supplies moderate, demand and movement moderate, market steady. Sales to jobbers, average yellow 44-46c per lb.

CLEVELAND.—Supplies of new stock liberal, demand and movement light, market weak. Sales to jobbers, per lb., extracted, Western, 60-lb. tins light amber 25-26½c, white clover 25-26c.

KANSAS CITY.—Approximately 75 cases arrived. Supplies moderate, demand and movement moderate, market steady. New stock, sales to jobbers, comb, 24-section cases, western light mostly $7.00-$7.50. Extracted, Colorado white alfalfa 22-23c per lb.

MINNEAPOLIS.—Demand and movement slow, market dull. Sales direct to retailers, western, comb, supplies practically exhausted, too few sales to establish market. Extracted, supplies light, 60-lb. cans light amber 20-22c per lb.

NEW YORK.—Approximately 50 barrels in boat from West Indies arrived since last report. Supplies increasing, demand and movement light, market weaker. Sales to jobbers and large wholesalers, extracted, domestic, per lb., Californias, light amber alfalfa and white orange blossom mostly 18-19c, white amber sage 19-20c, West Indian, refined light $1.50-$1.60 per gallon, light amber alfalfa 14-15c per lb. Beeswax, no domestic arrivals reported. Supplies moderate, demand and movement slow, market weak. Sales to jobbers and large wholesalers, South American and West Indian, crude, light 28-30c, dark 27-28c, African, crude, light 25-26c, dark mostly 24-25c.

PHILADELPHIA.—No arrivals since last report. Demand and movement slow, market dull. Sales to jobbers, per lb., extracted, California orange blossom 21½c, Porto Rican and southern, light amber $2.05 per gallon, San Domingo light amber $2.02 per gallon.

ST. LOUIS.—Receipts light, demand and movement slow, market dull, little change in prices, almost too few sales to establish market. Sales to jobbers, per lb., extracted, in cans, mostly southern, light amber 16-18c, Californias, light amber 20c. Comb, no sales. Beeswax, too few sales to establish market.

George Livingston,
Chief of Bureau of Markets.

Special Foreign Quotations.

DOMINICA.—Honey is being bought locally for export at $1.30 per gallon, the purchaser furnishing the barrels. This has been a rise in price since the beginning of the season from 80c.—E. L. Sechrist, Monte Christi, R. D., June 20.

CUBA.—The price of honey is $1.30-$1.40 per gallon. Wax is $37.00 per 100 lbs.—A. Marzol, Mantanzas, Cuba, July 7.

Opinions of Producers.

Early in July we sent to actual honey-producers scattered over the country the following questions:

1. How do you think the crop in your locality will compare with a normal crop?
2. How many colonies are there in your locality compared with the number last year?
3. Have buyers made any offers for honey?
4. Have any producers sold or contracted their crop yet?
5. If so, at what price.
6. Those beekeepers who have not sold, will probably hold for what price?

Answers, as condensed by the Editor, are as follows:

BRITISH COLUMBIA.—Present prospects are good for a normal crop. Prices will be about the same as last year.—W. J. Sheppard.

CALIFORNIA.—Crop normal; number of colonies 150 per cent. Buyers offer 16-21c for white honey. Producers sell practically all thru the Exchange; those not having sold will probably hold for 20-25c.—L. L. Andrews.

COLORADO.—Prospects good for normal crop; spring count of colonies about the same. I have heard of no offers from buyers nor of any producers having sold; will want probably 20c for white honey.—J. A. GREEN.

IDAHO.—Crop normal or a little above; 110 per cent in number of colonies. Producers have not yet sold; will probably hold for 20c upward for extracted.—E. F. Atwater.

ILLINOIS.—Crop one-half of normal; number of colonies 75 per cent. Buyers have not made offers, nor have producers sold their crop. Beekeepers will probably hold for 25-30c.—A. L. Kildow.

INDIANA.—Crop normal; number of colonies 75 per cent. Buyers have not made offers yet, nor have producers sold. Beekeepers will probably hold for about same as last year.—E. S. Miller.

IOWA.—Crop and colonies about normal. Season late, and producers have not sold their crop yet, but they will probably hold for 25c on extracted in big lots. Not much comb honey produced here.—Frank Coverdale.

FLORIDA.—Away from the coast about 10 per cent of a normal crop; from mangrove about 75 per cent. Number of colonies about the same. Home demand takes all the crop. I am selling at 18c.—Ward Lamkin.

MARYLAND.—Crop and number of colonies about 75 per cent normal. Producers have not sold their crop yet.—S. G. Crocker, Jr.

MASSACHUSETTS.—Crop and number of colonies normal. Buyers have not made offers yet, nor have producers sold their crop. Honey is retailing at last year's prices.—O. M. Smith.

MICHIGAN.—150 per cent of normal crop; number of colonies 40 per cent. Buyers have not made offers nor have producers sold their crop. Beekeepers will probably hold for extracted 24-28c and about 35c for comb.—B. F. Kindig.

MINNESOTA.—Crop normal; number of colonies 75 per cent. No offers, nor have producers contracted their crop yet; will probably hold for about 20c (extracted, wholesale). Biggest flow in years, but weather continues not the best, and fewer colonies than usual.—C. D. Blaker.

MISSOURI.—Crop better than for three years. Buyers have not made offers yet, nor have producers sold their crop.—J. W. Romberger.

NEBRASKA.—Crop and number of colonies normal. Buyers have not made offers yet, nor have producers sold.—F. J. Harris.

NEW YORK.—Crop 20 per cent normal; number of colonies 50 per cent. Buyers have not made offers and producers have none to sell.—Adams & Myers.

NEW YORK.—Crop normal; number of colonies 90 per cent. Too early to say what prices will be. —T. W. Lesser.

NEW YORK.—Crop 50 per cent of normal; number of colonies 40 per cent. Buyers have not made offers yet nor have producers contracted their crop Prices will probably range a little higher than last year.—George H. Rea.

OKLAHOMA.—Crop 90 per cent normal; number of colonies normal. All honey is handled on local market; extracted 25-30c, comb 35c.—C. F. Stiles.

ONTARIO.—Sixty per cent of normal crop; number of colonies only one-half. Beekeepers are asking 25c wholesale and 30c retail for clover extracted, and expect prices to increase 5c over last year.—F. Eric Millen.

PENNSYLVANIA.—Crop about average; number of colonies 70 per cent. Producers have not sold yet; most of crop is sold in near-by towns; not much harvested yet. Beekeepers will probably hold for 23c, shipping point.—Harry W. Beaver.

TEXAS, south-central and southwest.—Crop is slightly above normal; number of colonies increased 10 per cent. Buyers are offering from 14 to 24c, according to quality and manner of delivery; spring crop is largely sold, at an average of 20c; some beekeepers holding for 24c.—H. B. Parks.

TEXAS.—Crop 25 per cent below normal; number of colonies increased 10 per cent. Producers have sold at 17-24c for extracted and 22-24c for comb; much honey yet in hives; some prospect for a mesquite flow.—J. N. Mayes.

EAST TEXAS.—Crop 25 per cent short; 30 per cent of colonies lost. Producers have not sold yet, and will hold for 18-20c wholesale and 30c retail.—T. A. Bowden.

UTAH.—Crop is normal; number of colonies 20 per cent less. Buyers offer 19c for extracted, but producers are not selling yet; some holding for 20c. Extracting is two weeks earlier than usual.—M. A. Gill.

WASHINGTON.—Crop and number of colonies more than normal. Buyers have made no offers nor have producers contracted their crop yet. In this valley the bees are just beginning to store, and no beekeeper knows just what to hold for.—George W. B. Saxton.

WISCONSIN.—Crop not up to average. Producers have not sold yet; those around Madison hold for 35c retail and 30c in 60-lb. cans wholesale.—H. F. Wilson.

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HONEY FINEST MICHIGAN Raspberry, Basswood and Clover comb and extracted honey. Unexcelled for quality and flavor.

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Crate 6 cases (24 sec.) A No. 1 Comb 36.00
Crate 6 cases (24 sec.) Extra Fancy 42.00
Two cans (120 lbs.) Extracted 30.00

Send Today for Free Sample.

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UNTESTED QUEENS

To June 15th		After June 15th	
1	$1.50	1	$1.25
12 or more	1.25	12 or more	1.00

TESTED QUEENS

To June 15th	$3.00	After June 15th	$2.00

BEES

1-pound packages	$3.00	2-pound packages	$5.50

We will furnish one comb filled full of brood with one pound of bees for $5.50, no queen. You are almost sure that these will reach you in perfect shape. You get a 50c comb; they will build up much quicker than a 2-pound package. There is no danger of their swarming out.

NUCLEI

1-frame	$4.00	2-frame	$7.00	3-frame	$9.50

No queens included at above prices.
Nuclei are on good combs, full of brood with plenty of bees.

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We can furnish, and can ship on date specified, full colonies of bees in new hives, good comb, and good strong colonies with **Tested Queens:**

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1	$2.00	1	$1.50
12 or more, each	1.60	12 or more, each	1.25

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We sell ROOT SHIPPING CASES. They are well made and lined with corrugated paper thruout. The Standard Case holds twenty-four sections. We have a limited nnmber of twelve-section and sixteen-section cases at a bargain.

FIVE-GALLON CANS.

The ordinary five-gallon can weighs about 2¼ lbs. Ours weigh 3 lbs. each and have a 3-inch screw-cap. It is heavier than most cases. A case and two cans weigh 19 lbs.

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Invest your money in Lewis "Beeware" at 9 per cent. Play safe on transportation delays, slow deliveries of raw materials and the loss of your honey crop.

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Factory and Home Office—Watertown, Wisconsin.

GLEANINGS IN BEE CULTURE

AUGUST, 1920

EDITORIAL

Honey Ought to Bring a Good Price.

WHEREVER beekeepers meet just now the probable price of honey is discussed, and, altho there are rumors of future prices ranging all the way from 15 to 30 cents, many beekeepers claim they will hold for 25 cents in carload lots.

The price the producer will receive for his honey and the price he should receive may differ considerably, as they sometimes have differed in the past. If so, who will be to blame? It will be the producer who is to blame. So long as he continues to be satisfied to sell at the first chance and at the buyer's offer, he really has little right to complain of prices. Now this does not mean that it is wise or justifiable to hold honey for top-notch prices, but it does mean that **the producer should get a fair price for his honey**. We do not know what price honey will bring the coming year nor do we care to make any prophecy along this line, but we do know that if the beekeeper takes into consideration certain important factors he will not take a low price for his crop.

The average per colony will likely be very good this year, but let us not forget the heavy winter and spring losses referred to in our last issue. Again, we all know sugar is scarce and the price up. This naturally helps the honey market. When the beekeeper stops to consider these factors, together with the large increase in the cost of bee supplies, the increase in the cost of labor, and the continued high cost of all the necessities of life, we feel certain that he will realize that **he should have as much for his honey this year as he received last year**, if not more.

The honey market as it is today, and as it is likely to be in the future, is discussed and quoted more fully than usual on our "Honey Markets" pages of this number of Gleanings.

* * *

New Foul-brood Law in New York.

AS NOTED in our News Department of the July issue, the State of New York now has a new foul-brood law, the same going into effect on May 13 last. It has some features in it that may well be incorporated into the foul-brood laws of other States. In the main the law is the same as all bee-disease laws; but the new sections make it a little more definite and of a wider scope.

Section 200A of the new law requires that the assessors report all owners of bees within their respective districts. It has been shown in hundreds of cases all over the country that there are not a few beekeepers with a hive or two located in some out-of-the-way places, and just where, if diseased, they would be a menace to all other bees in the neighborhood. It has happened more than once in New York and elsewhere that some good beekeeper would be constantly fighting disease and wondering why he could not get rid of it. After a period of three or four years he finally discovers that some inexperienced person has in range of his apiary a colony of bees, hitherto unknown to him, rotten with disease. The inexperienced beekeeper does not know that there is anything wrong, and in many cases will allow a hive, in which bees have died from foul brood, to stand open and free of access, a constant source of infection to all bees within two or three miles of him. It has hitherto been almost impossible for the foul-brood inspectors to get track of every beekeeper; and the purpose of this section requiring the assessors to report all bees will be perfectly obvious.

There is another feature, namely, that no person shall remove or transport bees that are suffering from disease from the place where kept to any point within the State of New York, except under a written permission from the Commissioner of Agriculture. Provision is made, however, that a diseased colony in a healthy apiary may be removed to a point of segregation or quarantine. It is further provided that no bees under quarantine shall be removed without permission, nor shall any person or transportation company receive any bees from a point within the State for another point therein unless the bees are accompanied by a certificate from an authorized inspector stating that such bees are in a healthy condition.

No bees from **without** the State can be moved into New York unless accompanied by a certificate from an authorized inspector showing freedom from disease. Unless there is such a certificate, the transportation company shall notify the Commissioner of Agriculture of the receipt of such bees.

These general features, so far as we can see, are good, and should be incorporated in every law. They do not, as we understand it, prohibit interstate shipment of bees, provided they bear a certificate from an authorized inspector whence they came, showing that the bees are healthy.

* * *

The Onward March of Alsike Clover.

OUR ISSUE for April, page 202, told of the wonderful progress that sweet clover is making thruout the West. As marvelous as that is, alsike is making far greater headway thruout the East, and wherever alsike grows, beekeeping flourishes. In the numerous trips the editor has been making he finds that alsike has practically supplanted the former old standby, red clover. The latter requires a considerable amount of lime, and, moreover, the soil must be good and not too wet.

There are several things that have influenced the farmers to drop red clover. A bushel of alsike-clover seed is cheaper than a bushel of the seed of red clover, and it will go twice as far in seeding, according to J. Sidney Gates in the Country Gentleman. The lime, likewise, is expensive—so expensive, in fact, that the farmer wonders whether he will ever get his money back if he puts it on his land. The county farm agents and experiment stations are telling him that alsike will grow on poorer land—on land having less lime, and on land too wet or too anything, in fact, to support red clover. The net result of this propaganda is that alsike is fast crowding out red clover.

Most farmers know that alsike grows splendidly with timothy. A mixture of the two makes a far better hay, especially for milk stock. The timothy also holds up the alsike where the latter grows up rank.

Mr. Farmer is also learning from high authority that alsike winters better than red clover. It will grow in colder and hotter climates; and, according to the authority already cited above, there are plenty of fields of it in the northern part of the southern States. It grows thruout all the cotton belt. It is a splendid crop to rotate with the cotton.

In a like manner alsike is being used to rotate with corn in the corn-belt States.

The only objection to alsike is its smaller growth compared with red or pea-vine clover; but its quality is superior. Nor is it quite as good for pasturage after the hay is cut.

This year, of all years, is the banner year for all the clovers on account of the frequent rains. The editor has been connected with this journal for 35 years; and never in all his experience does he remember a year when there was so much alsike and such a splendid growth. One good farmer told us yesterday, June 29, that he saw no reason why clover (alsike and white) should not continue to yield honey until August, and we have had two weeks of a good flow already. So long a flow, if it lasts till August, is something we have never known before around these parts.

The onward march of **sweet** clover thruout the western States, and the tremendous increase in the amount of **alsike** clover thruout the eastern and northern States, make a very bright outlook for the honey business—not necessarily for this year only, but for the years to come. We well remember how, some 30 or 40 years ago, A. I. Root, almost single-handed, extolled the merits of sweet and alsike clover. The local farmers made fun of him; but a glance today over the country regions of the United States, east as well as west, proves that his vision of what was to come has more than been realized.

Alsike in the East has come to be a staple crop, and it is going to stay year in and year out. Unlike **red** clover, it is a **perennial.** When it once gets into a locality it is bound to stay in the meadows, the fence-corners, and come up spontaneously in the fields of timothy and red clover. It thrives like a noxious weed on good and poor land, and yet there is no better forage plant for bees or stock.

There is one more factor that is developing beekeeping in the East; and that is, the farmers have finally discovered the value of lime, and so lands that have always been sour are now being sweetened with lime. Clover of all kinds will then grow. This will mean that clover honey will be produced where formerly no clover grew.

* * *

Warning to Extracted-Honey Producers.

WE WISH to urge with all the emphasis that lies at our command that it is utter folly for extracted-honey producers, after securing a nice crop of honey, to put it up in poor containers, poor second-hand or light-weight tin, and then lose several cents a pound on the entire shipment because the honey was not put up right. The principal causes of loss are: Square cans that leak because they are improperly boxed; square cans that are too light in the first place, or second-hand square cans of too light tin, and therefore too weak to serve in a second shipment. It should also be borne in mind that tin cans of honey in less than carload shipments suffer more damage than in full cars.

Even if the producer sells his honey f. o. b. at his station, he should use good containers. He may think it makes but little difference how the honey goes thru to its destination, provided he gets the cash for his honey before it leaves his station. But he should remember this fact, that the buyer, if he has bad luck with that shipment, will buy elsewhere next year; and if he buys again it will be at a considerable reduction. It is not only a question for this year but for all time to come. If the producer will pay out a little more for good containers, the buyer will be more likely to pay more for the honey. Good containers have a salvage value, while poor ones are often worse than junk. Don't forget that.

The California Honey Producers' Co-operative Exchange, the Colorado Honey Producers' Association, and other societies of organized beekeepers have been urging on their members the importance of good containers. The managers of these organizations know only too well that the complaints they have had are on account of leakage that has spoiled the whole shipment in some instances. This causes no end of controversy between the producer, managers of the associations, the railroad companies, and the buyer. No one is satisfied. The producer as well as the buyer loses money, and the railroad company is inclined to advance its rate. In the mean time the manager of the association gets between the buzz saws on all sides.

Mr. Justice, former manager of the California Exchange, has been urging an extra-heavy tin can with 1¾-inch screw cap; and Mr. Rauchfuss of the Colorado Honey Producers' Association has been recommending something similar; and they ought to know, because they have had experience, if any one has, of the loss that their members have sustained on account of poor containers. The A. I. Root Company knows something about the loss to producers and the trouble that arises on account of poor cans, and also, we might say, poor boxing of the cans.

The ordinary square cans holding 60 pounds of honey are usually made to hold a liquid not heavier than 8 pounds to the gallon. If just right for that weight of commodity, they are a little too light for a commodity like honey that weighs at least 12 pounds to the gallon. But our experience teaches us that it is not so much the **weight of the tin can** that causes the trouble as it is the poor box, especially a box without a center partition. We should much prefer a light-weight can in a **good box with a center partition** than a heavy can in a poor box without partitions. A box may be of good stock and well nailed but yet be too large. Even if there is a central partition, and the cans ''shake'' inside of the box, there is great danger of trouble. There should be a neat, snug fit.

Well, we will suppose that we have good cans, good boxes, with good fit and center partitions. A lot of producers make the serious mistake of nailing the covers on carelessly. The nails, instead of going into the wood, pierce the can. The result is a ''smear'' near the top of the can and of other cans adjacent. If the cans with nail-holes are turned upside down, the entire contents are lost, and a bad smear is over the bottom of the car.

Another mistake is the improper loading of the cases or boxes in the car. It is not only important to have no end or side play inside of the boxes, but the boxes or cases must be snugly loaded in the car. If the car is not quite full the intervening space must be thoroly braced with 2 x 4 timbers so placed that the end shocks of the car due to the starting and stopping of the train may not break and let loose the boxes to tumble all over each other in a heap. If there is not quite a carload, it is far better to spread the cases over the entire car floor than to heap them up in the two ends of the car. In other words the load should be evenly distributed.

We are advised by the can men that it is rather difficult to get a special can for a particular weight, unless the order is placed early and in large quantities. The associations are able to get heavy cans; but individual beekeepers are not able to do so, as a rule, under present conditions—conditions that will probably prevail thruout the summer and fall. They will have to take what they can get in the way of cans. Ordinary square cans will do very well, provided they are properly boxed and the boxes braced in the car after loading. Always remember that a **full** car will go thru much better than a car not full.

The can companies are not particular about furnishing boxes with the cans; but the beekeeper can have his boxes made at his bee-supply factory or at the planing mill; but he himself should nail up the boxes to be sure they make a neat fit. A box that is too tight is about as bad as one that is too large.

During these strenuous times the extracted-honey producer will have to make the best of the situation. It is always wise to use caution in buying second-hand cans. If they have previously contained no ill-flavored honey, if they show no rust spots, if the boxes are well made and a close fit, they would be reasonably safe. Some second-hand cans are dear at any price.

It will bear repeating when we say it is a very poor policy to risk a crop of honey in poorly fitting boxes without partitions—much less a whole carload of honey; so we believe it is money well invested to throw away poor boxes and make new ones. And do not be afraid to use good nails and plenty of them. There are some beekeepers who are so unskilled in the use of a hammer and nails that they can well afford to hire a better man or even a carpenter, even at a dollar an hour, rather than to suffer the loss of ten or even a hundred times that paid out for such services.

As previously stated, the greatest loss from leakage from square cans is less in carload shipments. Cans that will go thru in good order in a full car that the producer loads himself may be entirely unfitted for less than carload shipments where cans are reloaded. It is here that heavy cans and good boxes are needed if ever. When they become second-hand they will have a good market. This is a point that producers often overlook when buying their containers.

GET MORE HONEY

Another Method of Increasing the Yield for Next Year. Help Spread the Facts Concerning Alsike

By Frank Coverdale

THIRTY-FOUR years ago there was not a field of alsike clover in my part of the State, so far as I knew. It was then that I saw the first field; and from that year this legume has become more and more popular among farmers generally, until now it furnishes the bulk of the clovers grown here. This was largely brought about at first thru my own efforts. Being a farmer as well as a beekeeper I was in position to learn its value, not only as a honey-producer, but as a valuable crop for seed and hay and for pasture and for all kinds of live stock. It has been discovered that wherever this clover has been grown, pastured, or cut for hay or seed, it comes up whenever the field is sown to any small-grain crop, thus making a good catch without further seeding. This is due to the fact that alsike produces sufficient seed to keep on hand in the soil enough seed for all ordinary occasions. Alsike is a very prolific yielder of seed, like white clover, and, like the latter, the bees work on it so freely that there is no lack of the blossoms' being fertilized. The above characteristics count for much, and will keep alsike clover with us for all time to come.

Alsike makes its best growth on land that is low and wet, and on deep loamy soils. On such lands it will grow to a height of four or five feet; but it will fall to the ground unless seeded with some other strong grass to hold it up—orchard grass or timothy being the best to seed with it. All one needs to do when alsike is once established in the land is to sow the timothy or orchard grass. On light soils and on dry upland the clover does not grow very tall but fills better for a seed crop. If wanted for hay it should be seeded with timothy. The two, when grown together, will result in a very fine crop of hay. Alsike is a better hay to cure, and will stand being rained on once or twice and yet be good hay; but red clover would be all but ruined by rains. This is because alsike has a smooth stem, while red clover has a hairy growth all along the stems, and consequently the rains turn it black, thus injuring its value materially.

Alsike will hold its own over any other clover, not only because it grows and thrives in soils so acid that red alfalfa or sweet clover would die outright, but, for reasons already stated, it will always remain where-ever it gets a good hold. Alsike fills the same place that white clover does as a producer of honey, and it may be pastured and the bloom prolonged just as white clover can; or alsike may be mown early and a second bloom come on, and this second bloom will yield honey well, but this early mowing will not be at all practiced.

The lengthening of the period of yielding will be affected by pasturing with live stock. It has become a general practice here to mix in alsike seed when seeding red clover, and the practice is giving great satisfaction. The alsike being well adapted for thickening the stand, such fields show up well and make heavy crops of clover hay of fine quality; and if the first crop of this red clover and alsike is not cut too late, both alsike and red clover bloom together which, on account of the alsike, makes very good bee pasture. This is especially true during a moist season. From an economic point of view alsike should be seeded on every farm east of the alfalfa belt because it becomes a very valuable plant, and, a thing that will please every farmer, it is always coming up just as most bad weeds do when they once get their seeds scattered in the soil. One may say, "See what a fine stand of clover I have, and I didn't have to put my hand in my pocket either." In this case, if one wants red clover all he has to do is to sow it, as then he will get the mixed crop.

If red clover should become extinct in the clover belt it would be a serious loss to the bee industry, as much nectar is gathered from it. This is especially true when the crop is ripening and when the weather is dry and the grasshoppers eat off the tubes, making the nectar available to the bees.

Later I shall have something to say about sweet clover, which, when used in its place, is of paramount importance for live stock and for the production of honey and also as a crop to put land in the very best trim to grow other crops. I am growing all these clovers, and I believe it will finally come to this—each and every clover for its own place.

Alsike seed should never be covered too deep at seeding time. Aside from this the ground should be prepared and seed sown just as is the custom with red clover. Alsike does well, even where water partly covers the ground. It can be seeded in swamps where other grasses grow tall, and it will keep up—yes, to the height of six feet, just as the writer has seen it. Where one wishest to seed one of those wet sloughs or swampy places, just burn off the old grass and then in early spring sow the seed; and if the wild grass does not smother it, then the second year there will be a great field of alsike that will be just as high as any other grass. I know of no other clover that could be used in a place like the above with success.

Alsike ranks well as a honey plant. When generally grown in the surrounding country, the number of colonies can be materially increased. The coming of alsike upon the stage has almost eliminated the poor sea sons, as there will be fields of alsike where little white clover is to be found. To be sure, there are certain seasons when alsike, even tho plentiful, has failed to secrete sufficient nectar for a surplus. But time and again it has saved the beekeeper from actual feeding, and tided him thru to the fall flow that gave plenty of stores for winter.

Delmar, Ia.

[In our July issue Mr. Coverdale explained one good way to get more honey. This month he gives another method that has helped him to increase his yields.

What Mr. Coverdale has done, others can do. He says that it has been largely thru his own efforts that alsike has become so widely grown by the farmers in his part of the State. There is no reason why many other localities cannot be improved in the same way. As soon as farmers begin to appreciate the value of alsike, it will be sown much more extensively than at present.

From our own experience as well as that of others we know it will pay the beekeeper well to do all that he can, even to furnishing part of the seed, in order to get the facts before the farmers of his locality.—Editor.]

TEXAS AS A BEE COUNTRY

Good and Bad Points About Texas; Also Something About an Old-Time Queen-Breeder Still at Work

By E. R. Root

SOME 40 years ago there was a great exodus of people to Kansas. Glowing reports had been brought back of the enormous crops secured there. Thousands upon thousands went. Then came the grasshoppers and the awful drouths, not to mention the tornadoes and other drawbacks. Many came back or went farther west, sadder and madder than when they left home in the East. But, as every one knows, Kansas recovered, and is now one of the leading agricultural States of the Union.

What has happened to Kansas has happened to Texas. A few years ago nearly every one was going to Texas. It was claimed that it was to be a cure-all for all diseases, that it had a mild and equable climate, no cold nor dampness, that there were no failures; and that every one who went there made money. Unfortunately there came the long parching drouths. The newcomers did not know how to adapt themselves to such conditions, and many left the State sick at heart and sick in body.

W. O. Victor looking over the markings of the bees of one of his breeding queens. Mr. Victor is one of the oldest queen-breeders in the United States. He owns and operates something like a thousand colonies of bees, a part of which are run for extracted honey, a part for pound packages, and the rest for queens.

One of Mr. Victor's out-apiaries with Mr. Victor standing in the foreground. The trees are the mesquite, which had not leaved out at the time of the editor's visit.

It is the same old story. There is no State nor locality in the United States that is always dependable. There is no State in the Union where there is no chill nor dampness. I have suffered more from actual cold in some of the semi-tropical States than I ever did in the North. Why? People in the South and in the semi-tropics have learned to get along without an elaborate heating equipment. Apparently they can or do stand it. But when I get chilled thru I want a good fire or a steam radiator, and sometimes neither is available in the South. I do not like to tell my hosts that I am cold and nearly frozen to death. I just sit and shiver; and when I am asked if I am cold, I say, with chattering teeth, "Oh, no! I am very comfortable, thank you." Even if I told the truth, those little stovepipe stoves would not warm me—at most they would "go out" before I could get warm.

There are some States where big crops of honey are secured, and Texas is one of them; but let me make it very plain that the man who moves from his old home where he is accustomed to the climate and conditions, as well as the people, is going to meet with some disappointment, no matter where he goes. Texas is a wonderful State—the largest in the Union. In the line of agriculture it stands nearly at the top of the list. For bees and beekeeping it is one of the best in the Union. But those awful drouths! They hit the beekeeper pretty hard sometimes, and only stayers—those who have grit and cash enough to pull thru—succeed.

There are very large areas in Texas that are wild, and in good bee country, too. Mesquite is found all the way from Arizona to the Mississippi River, and this is, perhaps, the most widely scattered. Then there is the huajillo and the catclaw. All three are called scrub desert trees. Where these three seem to be at their best is in Uvalde County. For the time being we will look about there.

A thrifty tree of the mesquite—a fair sample of what is seen all over southern Texas. While mesquite is not the main source of honey it is an important one.

"That Paradise of Bees."

Some 20 years ago, when I visited Uvalde, I thought it was an ideal place for keeping bees. In fact, I reported in Gleanings that it was a "veritable bee paradise," and so it was, and so it continued for a few years. Then came that series of bad years when everything seemed to be parched dry. Many of the old-time beekeepers left the territory or went into something else. But now Uvalde is beginning to look as it did in the days of old, and beekeeping has taken a new start.

T. D. Purdom looking at a specimen of plant.

We will not take time to interview all the prominent beekeepers there; but there are some large ones having a thousand colonies each. For instance, there is W. O. Victor, formerly of Wharton, but now of Uvalde. He is one of the oldest queen-breeders in the United States. He has had his ups and downs, as have nearly all the rest of them. But he is still sticking to it and making good. He has apiaries scattered around in different sections in the semiarid desert. His right-hand man—one who seems to understand the business and conditions in Texas—is T. D. Purdom. In fact, he gave me quite a history of the honey plants of Texas. He is shown in Fig. 4.

While mesquite, catclaw, huajillo, and broomweed are the principal honey plants of southern Texas, cotton is the main source on the cultivated areas further north. But cotton does not yield honey on all soils.

When we speak of cotton we should bear in mind that the honey comes from the leaves and floral bracts or nectar-glands as well as from the blossoms themselves. This naturally raises the question whether cotton honey, a large part of which does not come from the flowers, should be classed as pure. I submitted samples to the United States Bureau of Chemistry, and received a report saying that the honey was practically normal, and would be accepted as a pure honey.

By the way, cotton honey varies—sometimes a little on the amber or reddish color, and at other times it is pure and white. The best cotton honey is almost a neutral sweet, tasting very much like cane-sugar syrup. In fact, it can be used for sweetening coffee and canning fruit about the same as common sugar. It ought to be fine for softening down a strong-flavored honey for bottling purposes.

Besides the cotton there is a very large list of honey plants in Texas, such as the broomweed, hackberry, arnica weed, soapbrush, whitebrush, persimmon, mountain laurel, and a long list of minor plants that are but little better than brood-boosters; but they are important because they come at a time when they enable the colonies to build up to catch the main honey flow later on.

Mountain laurel is it poisonous? Some say it is, and others say that it is not. I am reliably informed that it sometimes kills bees, and in the case of human beings it causes an awful nausea. My advice is to play safe and not eat it. If it kills bees, move the colonies to another location.

INTRODUCING BY FASTING

The Behavior of the Queen Apparently More Important Than the Odor When Introducing

By Elmer G. Carr

MR. Diemer's article in the June issue of Gleanings prompts me to write about the "fasting" or starvation method of queen introduction. Mr. Diemer stresses the need of the introduced queen's acquiring the colony odor to insure acceptance. So important does he consider this that it is mentioned thrice in the article referred to. He admits, however, that there is no need of this if a good honey flow is in evidence, and also claims ready acceptance of a queen in a colony nine days queenless, first destroying cells.

Much has been said about odors in managing bees; even Father Langstroth recommends the use of peppermint in connection with some manipulations. (See Langstroth, L. L., 1863, "The Hive and Honey Bee, reprinted by The A. I. Root Co., Medina, Ohio, 1914.)

It would be of interest to know if anyone has direct evidence that odors play any part, prominent or otherwise, in queen acceptance. Can anyone show that the behavior of the queen herself is **not** the **deciding** factor?

The introduction of queens both for the control of European foul brood and improvement of stock is claiming much attention, and a safe and easy plan is needed. Undoubtedly the greater part of shipped queens are introduced in the mailing cage, because in the case of the experienced apiarist this involves less labor, and for the amateur it is simpler. A 10 per cent loss of queens introduced in this manner is common, and is expected. While there may be no 100 per cent perfect plan of queen introduction, the "fasting" plan when intelligently used gives a high percentage of successful introductions under all conditions.

Simmins, in his "A Modern Bee Farm," in the 80's, gives this plan and mentions a definite time, 30 minutes, for fasting the queen. He also recommends that the queen be introduced at "dusk." In discussing this point with Mr. Buchanan of Tennessee, at the St. Louis convention in 1913, he said he did it at any time of day.

A goodly number of tests of the plan, under all conditions, has led to the belief that when the queen has been without food until she is weak from lack of nourishment and when dropped into **any** queenless colony asks for food, almost never do the bees refuse to feed her, and when they have given her food she is treated as tho they never knew another queen.

A queen direct from a nucleus of a colony where she is laying freely will "starve down" much quicker than one which has not been depositing eggs for some time. Forty-five minutes will usually suffice in the case of an actively laying queen—in fact, is sometimes longer than necessary. A queen from the mails or one long caged may require an hour or more to become in a condition to behave herself when introduced.

The advantages of the fasting plan are the high percentages of successful introductions, and the queen is at once at liberty to go where she will in the hive. In a few hours, therefore, she will be depositing eggs in the colony, thus reducing to the minimum the break in egg-production in the colony. The disadvantage is the necessity for transferring the queen from the mailing cage to the fasting cage. This is also involved in Mr. Diemer's plan. It is usually recommended that this be done by opening the cage before a closed window and catching the queen as she crawls up the window pane. Many, however, experience difficulty in handling a queen with the fingers. Such persons may allow the queen to crawl up into the fasting cage as she crawls up the glass of the window.

One difficulty with the plan is that the beekeeper frequently does not have the window at the apiary. He is in the same fix as was Dr. Miller in regard to Mr. Doolittle's advice to make a bee-cellar in a hillside—he did not have the hillside.

I have no excellent plan for transferring the queen alone, safely and easily, to the fasting cage. However, there is evidence of much inventive genius among beekeepers, and it is to be hoped such will turn their attention to this subject and give us an entirely satisfactory plan for accomplishing this.

The fasting plan, in brief, is to place the queen to be introduced in a cage without food and attendants and leave her until her movements become sluggish when she is disturbed, indicating a weakening from lack of food; then place her loose on top of the frames of the queenless colony, using only such an amount of smoke as may be absolutely necessary to handle the colony and immediately closing the hive.

Simmins mentioned 45 minutes as the proper fasting period, and was using queens direct from nuclei. A longer time will probably be needed in the case of queens which have not deposited eggs for some time.

The oft recommended plan of dequeening a colony and in about four days destroying queen-cells and then introducing the queen seems to have little to recommend it except to increase the labor. A colony which has built cells appears more unwilling to accept the new queen than one requeened as soon as dequeened.

New Egypt, N. J.

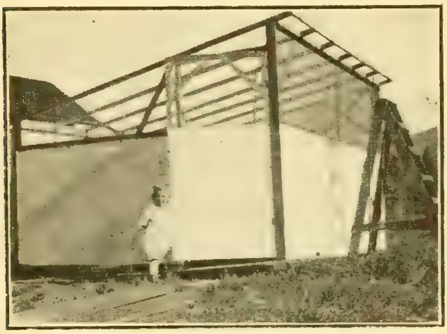
FROM THE FIELD OF EXPERIENCE

PORTABLE EXTRACTING HOUSE

Can be Put up in Thirty Minutes and Weighs but 280 Pounds

This honey-house was constructed by Charles M. Lechner of La Crescenta, Calif., and is used for field work by Arthur Innes. As a matter for fact, it serves the double purpose of extracting-house and sleeping quarters, and can be put up or taken down in 30 minutes.

The entire structure weighs about 280 pounds and is built in sections of such size that they may be carried on the trailer. The whole house, with the exception of the canvas roof, is shown in the picture on the auto annex ready for transportation.


This portable extracting-house can be put up in 30 minutes.

This handy structure is put together with 5/16-inch bolts and is 10 x 12 feet, with a height of 7 feet in front and 5 feet in the rear. The canvas is carried up for 4 feet on the three sides, while the part above is good heavy screening. The back is canvas for its entire height of 5 feet, both screening and cloth being closely tacked to the wooden framework.

There is an over-all canvas roof, which had not yet been put on when the picture was taken. This is first caught by metal eyelets, then made absolutely secure by a brace that fits over it and bolts at each end. The rafters are separate and are grooved to anchor securely to the crosspieces on which they rest.

The woodwork is all pine, 1¾x1¾ inches, except the braces, which are 1½x1¾ inches. The door is 3 feet wide, which admits the extractor easily, and on the opposite side is a small door 16 x 20 inches, which is used for the handy passing in and out of the hives. Zena B. Wales.

Los Angeles, Calif.

* * *

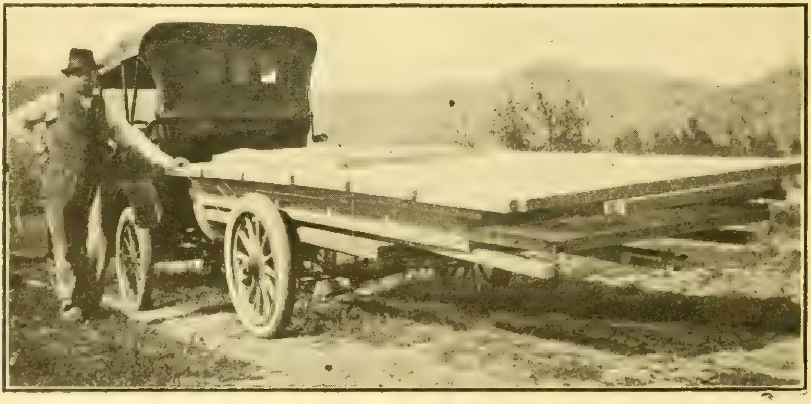
GETTING STICKY COMBS CLEANED

A Simple Platform That Precludes the Spread of Foul Brood

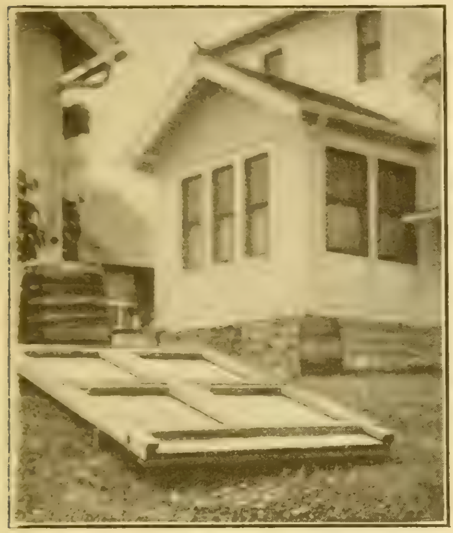
Dr. C. C. Miller once said: "To get extracting combs (and especially unfinished sections) emptied out without allowing the bees of more than one colony to get at them offers a problem worthy the inventive genius of some future beekeeper."

I think that problem has been solved by G. A. Deadman of Brussels, Ontario. His plan was described and illustrated in the 1915 annual report of the Beekeepers' Association of Ontario. Afterwards Mr. Deadman gave a more complete description of the plan in Gleanings, July 15, 1916, page 597. I have thoroly tested out this plan and would use no other. At my suggestion others have tried it and like it. I hope Dr. Miller will tell us what he thinks of it.

[In the plan to which Mr. Baker refers, a platform is made large enough to hold a


Portable extracting house ready for transportation.

colony of bees and three to five piles of supers to be cleaned. The platform is made of matched lumber, and strips of lumber are nailed to the platform in such a way that they will support the piles of supers and will not allow a single robber bee access to the piles, and yet by means of bee-ways beneath the strips supporting the supers will permit the bees of the colony that is to clean the super free access to all of the supers. The colony chosen for this purpose should be a strong two-story one and should have a very small entrance, since robbers are more inclined to enter when combs are being cleaned in this way. The supers may be piled as high as five supers if desired.



The Deadman platform ready to receive the supers filled with the sticky combs that are to be cleaned.

Mr. Deadman has recommended this plan not only for getting sticky extracting combs cleaned, but also for getting cleaned those sections containing only a little honey, and at the same time getting finished partly-filled sections placed above the strong colony.—Editor.]

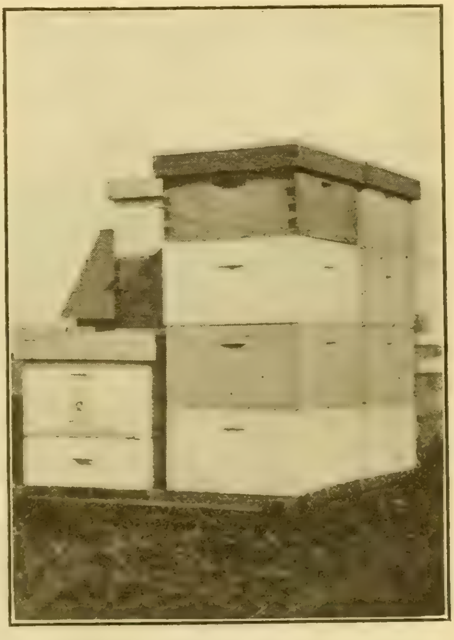
The writer is especially interested in the plan because it helps to check the spread of American foul brood in the individual apiary. For instance, disease may be in the immediate neighborhood and one does not know to what extent his bees may have brought in infected honey. After extracting, instead of putting the wet combs back indiscriminately on the hives, he can have all of the combs cleaned up by one or two colonies, according to the size of the apiary. Another advantage of this plan is that the bees will not leave cells here and there containing honey, but will thoroly clean out all the honey from the combs and take it into their hive. Chas. D. Blaker.

Minneapolis, Minn.

DISEASE IN THE NORTHWEST

How European Foul Brood Spreads and How It Disappears

European foul brood, I am sure, is carried into the hives from diseased material removed from affected colonies. Recently I inspected 40 colonies of bees that were bought from a beekeeper 25 miles away. These were clean, strong in bees, and in fine shape; but in less than three weeks 36 of these colonies showed European foul brood—some more, some less.. In one week more the rest of the colonies developed it. The thought occurred then, "Did it originate here, or was it brought with them?" A trip to the apiary where they were secured solved that question, as those not brought were as clean as could be and in perfect condition. There was only one conclusion, that the source of infection was here; but how and what remained unanswered. The honey flow was good; the water was running, not stagnant; there were no old empty hives ex-



The Deadman platform with supers on.

FROM THE FIELD OF EXPERIENCE

posed; but there were some cases of foul brood in the apiary (these being treated), that is, young Italian queens had been introduced to work out the accepted theory of curing. Being loath to believe the newcomers got the disease by visiting, I was inclined to think that the house-cleaners in infected colonies dropped the cleanings when flying away with them, and this might have been the means of the rapid increase of the disease. The newcomers may have taken up the germs that were thus scattered. One thing was very noticeable: Some colonies, right in the same apiary, exposed to all sources were clean, healthy, and strong. These contained young Italian queens of last year's breeding and were three and four stories high. The trouble reappeared in some colonies after treatment. Also queenless colonies would not clean it up in 10 days; but the trouble did disappear when the young Italian workers got numerous enough. There were exceptions, of course, but young Italian queens of strong stock would keep it down. Shaking was useless.

I can hardly reconcile the theory as to weak colonies being the first to show the disease. Some of the strongest colonies get it, and get it badly. They certainly are not weak in strength and numbers, but it may be their bees are less resistant owing to an aging queen.

But the thoro beekeeper, who has learned to"keep bees better," will reap a harvest in spite of the disease. E. J. Ladd.

Portland, Ore.

THE DAWN

The Birth of Another Day of Toil and Sweets to Man and Bees

A day is breaking. The first rays of light are peeping above the willows by the little stream that comes out of the east. Your windows look out upon the trees, whose tender leaves are still rustling with the cool breezes of the night. You hear a small bird, that had sought the friendly shelter of a neighboring bough, twittering so faintly, as tho it too had just begun to wake. Yonder lies the great city. Its lights are still faintly flickering thru the fog that seems to hang so heavy over it.

Sleepily you slip down into the garden and out by the nodding roses to the wild-grape arbor where the blossoms are sending out their faint and sweet perfumes. As you stand there under the great grape leaves that are shining bright with dew, you look down upon another city, so white and small and still; but signs of life are already there, for at the gateway of this city in the dim light you see a guard or two who show by their indifference that the bold marauders of the night have gone their way. It is the city of the honeybee sleeping so quietly and waiting for the coming of the friendly sun. Past the drowsy guards there comes a bee, the very first one of the dawn. It comes out slowly, hesitates, and seems to look up into the sky that it may tell the temper of the coming day, and being satisfied it lifts its wings and sails away that it may be

These are field-meet days "Up North" in the good old summer time.

FROM THE FIELD OF EXPERIENCE

among the first to find the clover in the field beyond. Soon another comes, and then another. One seems to falter, and turning round it goes back into its home as tho it would take another nap.

Smoke is creeping straight up out of a near by chimney, a distant whistle is heard; a dog, disturbed in his morning's slumber, is barking a disapproval; and soon you hear the rumbling of a street car.

The cobweb in front of you is trembling. It stretchs up from the grape trellis to a handsome trap the old gray spider has woven in the black night. He has already seen you and is hurrying back into his sunning nest. There comes another bee, and still another, and there a funeral procession comes forth; they are carrying forth some poor companion that has perished in the night. How hastily they seem to work as tho they would have it over as soon as possible that they may be the better ready for the tasks of the day.

A man is coming up the street, his head is bent far forward as tho he was walking in his sleep. He seems but a hazy shadow, so dimly do you see him thru the morning's light. In his hand he holds a pail and he is on his way to his daily clover field in some near-by factory, perhaps.

Toil and Sweets.

And the bees—they come, more and more of them. "Wake up, you tiny creatures," you say, " the sun is almost ready to peep over yonder hill." And as it slowly rises in its golden course they seemed to wake, and more and more of them come tumbling out and fly across the valley where the sweets are waiting to be gathered.

A motor car is heard and then a wagon goes groaning over the hard stones. A distant train is coming out of the night, with its heavy load of nectar for the mighty city. The milkman rattles his bottles as he puts them at the door. The small boy on the far corner is already crying his papers as tho such news had never been before.

Now the bees are coming faster out of that dark home. Helter-skelter they come, and taking wing they soar off toward the rising sun. Some of them are already coming back, perhaps the very first that ventured out in the gray dawn, already laden with precious burdens.

The cities are awaking, one so big and one so small; the tide is flowing and on and on they come; they are the strugglers of the city and the hive.

Another day is born, a day of toil and sweets to man and bee.

Cleveland, Ohio. J. H. Donahey.

A Quebec apiary, owned by Mr. P. Tessier of St. Casimir.

FROM THE FIELD OF EXPERIENCE

BEEKEEPERS' CONVENTIONS

A Discussion of Some of the Faults of the Present-day Sort of Meetings

As this, comparatively speaking, is the off season for beekeepers' conventions, what I am about to state need not be considered personal, and it is not intended at all to be so.

When I was a young man (now a great, great many years ago) we had beekeepers' conventions. The present-day conventions, in my estimation, are a mere shadow of what we had then. Has the glory departed? Will it come back?

I can remember great international conventions, notably, one at Detroit, Mich., at which were to be found, if I remember correctly, L. L. Langstroth, Dr. C. C. Miller, Dr. Mason, A. I. Root, Thos. G. Newman, C. P. Dadant, D. A. Jones, W. F. Clarke, S. T. Pettit, and no doubt, many others equally as worthy of mention among beekeepers.

Then arrangement was made for the newspapers to mention the industry, and that Detroit convention received a notice unique and wonderful. One of the leading papers in Detroit stated in its columns that the members of the international association in convention were a very fine body of men; that they did not go to the theatre; that the bartender at the hotel at which they made headquarters stated that not one of them had been served with a drink; and that the boy at the cigar stand stated that he had sold only one of them a cigar and that was a "five-center."

Could they say it now? I know we are creatures of habit—our environment influences us tremendously. I have often said we surely never sprang from monkeys, but we have degenerated to them. We follow custom, fashion, and "theirs not to reason why, theirs but to do and die." During the last five years people appear to think they should be allowed to smoke **anywhere**, and there are still many people who suffer when they breathe tobacco-smoke-laden atmosphere; and the grossest of all offenses is to smoke in places where people are eating. I speak of this kindly, and want to say: "Young man, you will never have any reason to regret it, if your lips never touch tobacco."

What I started out to write about is the length of convention notices. When we were officers we used to have a full program announced months before the convention was held. If there is nothing likely to be attractive, let people know it; if there is something worth while, then give them a chance to attend. I had a wave of (I trust) righteous indignation sweep over me a year or more ago when a notice was received of an important convention about a week before it was held. I sat down and with a red-hot pen wrote a little item for Gleanings, saying that those who had charge of getting out programs and arranging the time for beekeepers' conventions appeared to be under the impression that a beekeeper was a kind of person who sat on a chair by the fire with his clothing on day and night, overcoat on a chair by his side, ready to jump up from his seat, grab his overcoat and make for the station the moment he got word to come; and, if he did not make a mistake, or miss a train, he would likely get to the meeting in time.

Why this way of doing things? Oh! There will be a thousand excuses; but, after all, there is none. Thousands of times I have said to people who are behind: "Do a thing as early as you can and then, if this, that, or the other happen, you will still be in time." Is it not true?

Then when secretaries write to people, let the response be quick. I answer nearly all my correspondence immediately; but, alas, there is little reciprocity in this respect. I have often felt deeply wounded by having no answer to kindly letters.

In this day there are many speakers sent at expense to help conventions. Why not have secretaries co-operate more, so that these can make a continuous journey and save time and money?

There is probably no fault to be found with programs. At a national convention at Detroit, I think the last held there, at my suggestion to the secretary, W. Z. Hutchinson, the program included a debate and I was later told that this part of the program was considered a pleasurable, exciting and instructive feature. The subject of such a debate should be one upon which there are strong and distinct differences, and there should be impartial judges, or the decision might even be left to the individual.

Brantford, Ont. R. F. Holtermann.

FREQUENCY OF SUPERSEDURE

Dr. Miller Thinks His Bees Do Not Fail Once in a Hundred Times to Supersede

In July Gleanings, page 407, A. Butsch says: "The statement has been made that when bees are left to their own devices every queen is superseded before she dies. Now in my experience I have not found this true ....I find that the bees will allow the queen to go on laying until her fertility is practically exhausted when she will lay both drone and worker eggs in worker-cells. At this stage the bees, if they have any sense at all, surely ought to start queen-cells. In a few exceptional cases they do, but they generally allow the queen to go on until she lays nothing but drone eggs."

I plead guilty to having made the statement mentioned, and of course know that when a colony ceases to exist, whether it be blown up by dynamite, starves in winter, or dies because nothing but drone brood is left in the hive, there can be no supersedure. Perhaps I ought to have modified my statement by saying: "In the natural course of events, if a colony continues to exist, its queen is superseded before she dies." Even a statement of that kind leaves Mr. Butsch and myself very far apart in our views, and as those views are based on observation on both sides it must be that there is a great difference in the behavior of bees in the West Indies and the United States, or else in different strains of bees.

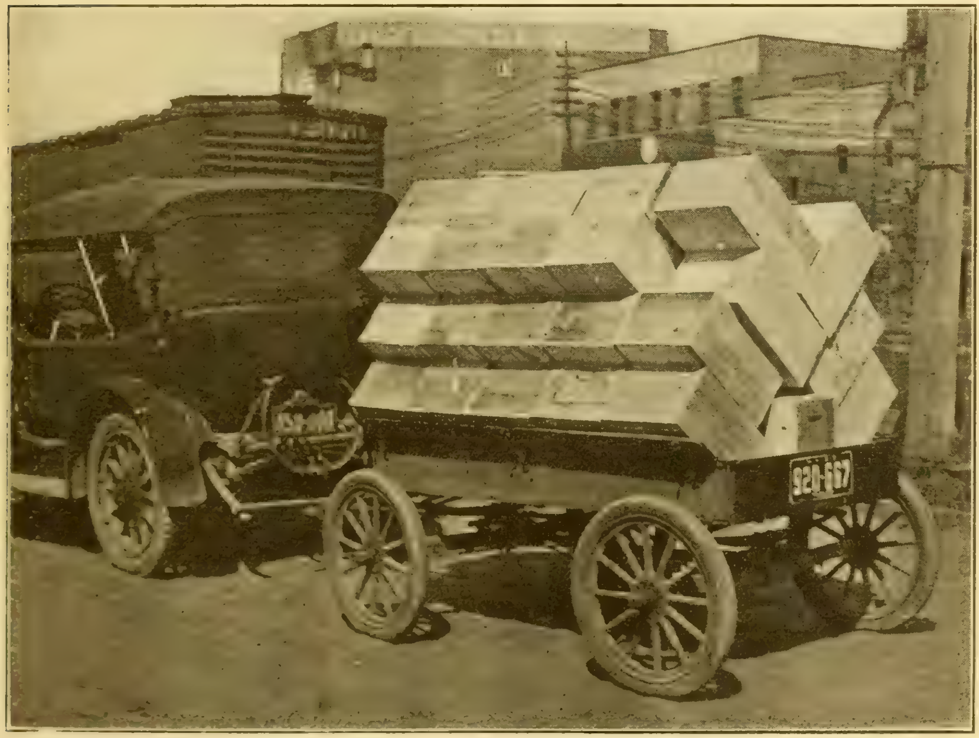
His bees only "in a few exceptional cases" rear a successor to a failing queen; my bees, I think, do not in one case in a hundred fail to rear a successor. It may be worth while to find out, if we may, what is, in general, the observation of others in this matter. Is the difference in localities, or is it in the bees? Perhaps we may be told what has been observed at Medina.

Mr. Butsch makes what will to many seem a surprising statement, when he says: "Bees as a rule will not start queen-cells as long as there is a living queen in the hive, whether she be a virgin, a laying queen, or a drone-laying queen." Surely swarming-cells could not have been in mind, and swarming-cells form a large part of all the queen-cells that are started. So far as I know, bees will not start queen-cells for swarming unless there be in the hive a living worker-laying queen. C. C. Miller.

Marengo, Ill.

[Our experience with failing queens is much the same as Dr. Miller's. In those rare instances in which the failing queen is not superseded, we have always supposed that the bees did their part and raised a young queen, but that she became accidentally lost—perhaps in mating. We understand that there is quite a loss in the mating of virgins in the West Indies. Possibly this would explain the difference in the experiences of Mr. Butsch and Dr. Miller.—Editor.]

* * *



A trailer belonging to F. A. Salisbury of Syracuse, N. Y., the wheels of which are made to track exactly with those of the auto. This plan of loading shipping cases (or hives) shows how to get on a big load without tying.

SIFTINGS

J. E. Crane

THAT idea of Wesley Foster, page 397, July Gleanings, of having a hospital yard for treating foul brood is a decidedly good thing and with us even more important with European than American foul brood, since the latter disease moves slowly while the former spreads rapidly. I have noticed that European foul brood appears in a yard first in from one to three or four hives. If these are removed promptly three or four miles, the danger of its spreading further is greatly reduced.

* * *

One of the most valuable articles in the July number of Gleanings, it seems to me, is that of Mr. Coverdale on page 403. He has learned, he says, that with a little feeding his location will support three times as many colonies and give two and one-half times as much surplus honey, or that 300 colonies would yield two and one-half times more honey than 100 colonies would without feeding. This is of immense importance in those sections where there is abundance of bloom that yields nectar freely. Two years ago we had in one yard not far from 300 colonies during clover bloom and were surprised to find that they stored honey nearly as fast as in smaller yards. As a rule, large yards will require more feeding in the fall, but the net results are in favor of the larger yard.

* * *

It is not always that we can arrange hives in a yard to suit our fancy; but that idea of A. A. Clark, page 405, of laying out a yard diamond-shaped with one corner coming to the bee-house, so the distance to travel from any part of the yard will be as direct as possible, is well worth remembering. The time spent by some beekeepers in traveling back and forth, lugging supplies and honey, can not be easily computed, but is in many cases far greater than it should be. I am pleased to notice that Mr. Clark speaks of dandelion as a valuable source of nectar. Also A. C. Ames, on page 424, says he will have several hundred pounds of surplus honey from this source. One of my neighbors, two years ago, secured some 150 pounds of dandelion honey by extracting before clover bloom. If we take into consideration the immense amount that is used in rearing brood at its time of bloom, we must conclude that this plant is one of our most valuable honey plants.

* * *

Ah,ha! Then that story about that wonderful walnut tree growing on Mr. Burbank's ground was a little overdrawn (see page 410). We can quite readily overlook the mistake, as Mrs. Puerden has given us much that is of interest in the July number of Gleanings. It was especially gratifying to read so many nice things about Mr. Burbank after hearing many things during the past few years to discredit him. How strange it is that when a man does a good thing there is almost always some one to discredit him or impute his success to selfish motives.

* * *

John H. Lovell does not exaggerate the value of the buttonbush as a honey plant, page 421. It grows freely on the east shore of Lake Champlain along sluggish streams that empty into the lake. Beekeepers find it a most excellent help at the close of the clover and basswood season.

* * *

The loss of bees here in Vermont was heavy, but from the time of dandelion bloom the weather has been unusually favorable. Alsike clover began yielding nectar earlier than usual; so there was only a short gap between fruit bloom and dandelion and clover. The last half of May and first half of June has brought an abundance of moisture, and the outlook for honey is very good.

* * *

R. B. Wilson says, page 424, that there is a law that forbids any one from shipping honey, bees, queens, or any other apiarian product either in or out of the State of Mississippi without a certificate of health. Now this is certainly some foul-brood law. From his statement it would seem that no beeswax can be shipped in or out of the State without a certificate. The same is true in respect to honey. It seems to me that these are rather unnecessary restrictions since, so far as known, foul brood is rarely, if ever, transmitted thru beeswax, and seldom thru section honey designed for table use.

* * *

I was surprised to read A. I. Root's estimate, on page 430, that one-half of the surplus honey in the United States might be from sweet clover. And then to think of one firm sending out an average of a carload of bottled honey a week. My mind runs back 50 years when I read with interest M. M. Baldridge's article in the American Bee Journal calling the attention of beekeepers to the value of sweet clover as a honey plant. I recall also that D. W. Quinby of New York begged beekeepers not to send any extracted honey to that market, as there was very little demand for it. And now a small town in Ohio is sending out a carload of honey a week and more than half of it sweet-clover honey. I feel like exclaiming as a certain old lady did, "Did you ever?" No, I never did expect to live to see such an advance in our chosen pursuit. If my farmer neighbors would only show more enthusiasm in sowing sweet clover as a farm crop, I should be pleased.

OUR FOOD PAGE

Stancy Puerden

THE editors have been hinting that another article on honey would be timely; so, if I am repeating things which have appeared on this page before, they must shoulder the blame. One of them has been talking about an article on the "Uses of Honey." I rather object to the plural. In my opinion there is just one use for honey and this is as a food, a delicious sweet, the only sweet refined and concentrated by nature.

Notice I am not denying that honey can be used in skin creams, etc.; but I believe there are other ingredients which can be used externally to as good advantage, leaving honey to its legitimate use as a food.

Also, please take notice, editors as well as readers, that I have no intention of ever writing about honey as a medicine. Honey is a food, not a drug. If we all paid enough attention to hygienic living, including good food, fresh air, exercise and rest, and sanitation, we would require almost no medicine.

A honey demonstrator, who has worked in cities and towns all thru the eastern part of the country, told me she had more call in the East for honey as a medicine than in any other way. That would be deplorable except for one thing—there are people who are determined to take medicine, and it is better for them to dose themselves with good food, such as honey, than to injure their digestions with harmful drugs.

Now I can just imagine some nice beekeeper saying, "Mrs. Puerden, you surely must admit that honey is a good remedy for coughs and colds." Yes, I do admit it, but let us always remember to use the word remedy in that connection and not medicine. There is a difference between the selection of the right foods to cure our bodily ills and taking medicines for the same purpose.

NOTWITHSTANDING the fact that I am including, with this article, a few recipes for the use of honey, I am not an advocate of the indiscriminate use of honey in cookery. Fine honey, whether in the form of beautiful comb, extracted, or the newer Cream of Honey, is never so fine as in its natural state. The degree of heat necessary to bake a cake injures the flavor and probably the food value of honey to a slight extent.

Now, after all this negative preface, let me say a few things about the ideal way to serve honey. The first place I should give to honey served with good, home-baked bread, fresh dairy butter, and milk, the bread preferably made of whole-wheat flour. You people who have your "staff of life," the modern baker's loaf, shipped into your town from some large baking plant, stale, flavorless, dry, under-baked, really cannot appreciate how good bread and honey can be. Fine honey, served with good bread, is much more satisfying and better relished by the child with natural, unperverted appetite than any cake ever made.

Here is a remark which I have heard so often that I have come to expect it when we have guests: "Homemade bread is a great treat to us. We like it better than cake in our family." And I always feel like replying, "Well, why don't you have it if you appreciate it so much?" I find it far easier to keep home-baked bread on hand than to bake cakes, and until American bakers learn to bake a better article of bread, I shall continue to bake bread for my family.

There, you think I have wandered far from my subject, don't you? Not a bit of it. I just wished to emphasize the point that honey should be properly accompanied to be appreciated.

The second place I should give to honey served with hot muffins, hot biscuits, waffles, griddle cakes, etc. An interesting writer on honey, whose name has slipped from my memory, in a recent magazine article states that old beekeepers, who really know honey, never serve it with hot breads. My mother agrees with her, and it was never served with hot foods in our home when I was a child. The managing editor of Gleanings also says he does not like honey on anything hot. I can't help it. Maybe it is a depraved taste, but I like the delicate aroma that arises when honey is poured over hot waffles or griddle cakes, or when a bit of it is placed on a hot biscuit. You know a great part of the sense of taste lies in the sense of smell, and a little heat, not too much, certainly does increase the fragrance of the honey.

Before the days of electric irons we used beeswax to prevent the iron from sticking to the starched clothes. A woman who used to do my ironing said she loved the odor that arose when the hot iron was rubbed over the cake of wax. It had much the same aroma that one gets from honey on hot breads.

Just at this point the beekeeper with whom I have lived for 22 years came along, read my manuscript, and said, "You are wrong on one point, Stancy, you should give the first place to honey served with hot biscuits, etc," and he appealed to our three children who promptly and unanimously agreed with him. It would be interesting to have the opinion of all the readers of Gleanings on the subject. My conclusion is to eat honey with anything you please, whenever you please, wherever you please.

NOW we come to the subject of honey in cooking. A few days ago one of the editors of Gleanings asked me if I used honey exclusively for sweetening baked goods. No, I never did, unless it was during the war with the accompanying sugar shortage. It can be done, of course, but honey is not as convenient as sugar for much of the baking and cooking; its flavor is lost in some foods, and combined with certain flavors it is positively unpleasant to my taste. Honey should be used with common sense, and if we beekeepers advocate its indiscriminate use we are likely to prejudice people against a delicious food. For instance, honey is not at best in a delicate white cake, altho it is invaluable in fruit cakes, certain kinds of cookies and drop cakes, chocolate cakes, and all kinds of sour milk cakes, having the property of keeping them moist, rich, and fresh tasting.

Altho some people like the combination of flavors I do not believe the average person likes honey to sweeten such acid fruits of pronounced flavor as cranberries, currants, cherries, sour plums, and the like. Also, altho good fruit jellies may be made with honey, I prefer sugar myself for this reason—when making jelly with honey the necessary boiling is likely to develop a very slight caramel flavor. Please do not misunderstand; I am not saying that good jelly cannot be made with honey, with care, but to advise it for jelly making is likely to prejudice the public against it. There are certain preserves which do not need so much boiling, which are delicious made with honey.

Here are just a few of the flavors which are especially fine combined with honey,—pineapples, apricots, peaches, dried prunes, raisins, dates, figs, almond, chocolate, cinnamon and other spices. Honey seems to develop the flavor of chocolate, and both chocolate and cocoa when used as a beverage are especially fine sweetened with honey. Honey also seems to blend well with the flavors as the raisin, fig, and date by the drying process.

AS to the use of honey in canning, no special directions are needed for it. The modern so-called cold-pack method of canning requires that the sugar for sweetening be made into a syrup and poured over the fruit which is already packed in the sterilized jars, and then cooked in the canner for the required length of time. The use of honey simplifies the process, because, being already in the form of a syrup it is necessary only to dilute it with water to the taste, heat it to the boiling point, and pour over the fruit in the jars.

As to the amount the honey should be diluted with water for canning purposes, that depends upon a number of things, principally the taste of the consumers of the canned fruit. Another thing to be taken into consideration is whether the fruit is put up for pies or other use in cooking. Many housekeepers prefer fruit canned with little or no sweetening if it is to be used in pies. It can then be sweetened to taste when the pie is baked.

Fruits in large pieces, such as peaches or pears, do not need as sweet a syrup as the smaller fruits, for the reason that there is more space between the pieces, leaving room for a larger amount of syrup. In the case of strawberries, a quart box may generally be crowded into a pint jar without crushing. This leaves very little room for syrup, and the syrup should therefore be much sweeter than in the case of large fruits to obtain the same results. This is a point which most writers on canning overlook.

A syrup in the proportion of one cup of honey to one cup of water is a good average for the large fruits, altho even less honey may be used, as fruit will keep without any sweetening at all if properly sterilized in the canning process. Two or three cups of honey to one cup of water, or an even larger proportion of honey may be used for the small fruits, crowded into the cans. A sweet syrup is also generally used for any very acid fruits.

Many writers on canning direct you to boil the syrup down. This should never be done when the syrup is made with honey, as it will injure the flavor of the honey. Add water in the proportion to suit your own taste and then heat it only long enough to make sure that it really boils.

SEVERAL years ago on this page I described an easy method of canning small fruits which retains the natural flavor to a greater degree than by any other method, and for the sake of new subscribers I am repeating it herewith. Prepare the fruit as usual by washing, picking over or hulling, if necessary; pack closely into sterilized jars, fill to overflowing with boiling honey syrup, seal tightly at once and plunge immediately into a boiler of boiling water deep enough to cover the jar, turn out the burner beneath or lift from the range, cover closely and leave until the water is cold. As an extra precaution it is well to wrap in a large towel or blanket. If you are doing a number of cans pack them all with the fruit before pouring over the boiling syrup and work rapidly to seal all the cans and immerse them in the boiling water before they have time to cool.

While I called this a method for small fruits, sliced peaches have been done successfully by this method and retained their flavor to a wonderful degree.

THE following recipes for Bran Raisin Muffins, Sultana Biscuits, Raisin Bread, Scones, and Conserve I adapted for the use of honey from recipes published in an article by C. Houston Goudiss in the People's Magazine. I love to combine the two natural sweets, honey and raisins.

The bread recipe is reliable and easy and may be made in the mixer without any hand-kneading. If your family is very small,

(*Continued on page 503*)

Beekeeping as a Side Line

Grace Allen

DOES anybody remember Mr. Allen's keg that failed to transfer itself? Well, Mr. Allen says I must add that the queen evidently went up once or twice to deposit eggs in the super on top, but she never let herself get caught there. He slipped an excluder in once or twice, only to find no eggs upon the next examination, showing that she was in the keg below when the excluder was put in. Probably had he been able to do it often enough during the season, slipping it in and out several times, he might have caught her. But anyway her workers stored some beautiful honey in their new supers.

We know a beekeeper who had a disastrous experience this summer, in removing honey by means of an escape with no inner cover over the supers. He had never bought from the supply houses any covers other than the metal ones, but there are in the yard a few other kinds that were acquired when buying bees. Evidently some of them are of faulty construction, altho this was not discovered while the bees were in the hives right up to the roof and so able to protect the top. Fortunately under most of these old covers were laid folded sheets of newspaper or burlap when putting escapes under, but one or two supers of particularly pretty honey got skipped. The bees being trapped down thru the escape, these supers of nice sealed honey were left with about three inches at each end of the top open for robber bees. They found them, too. When the yard was reached about 10:30 the next morning, it looked as tho a swarm were taking possession. Not one ounce of honey was obtained from that colony, but instead two supers of combs were badly damaged.

This matter of putting on escapes and deciding how much honey to take off becomes more difficult and complicated when the beekeeper is caught with a lot of unsealed honey on his hands. We were among those so caught this year, having piled on everything we possessed in the shape of supers during our unusual white-clover bloom of May, only to see it come to a swift and unexpected end in mid-June. "I take everything in the hive, sealed or not, and then heat it all. No danger of fermentation then," states one producer. "All I ask of the bees is to bring in the nectar; I can't do that myself," says another. "But I can ripen it in tanks the way they do in California. What do I care whether it's sealed or not?" "I leave all unsealed stuff on the hives—I'd far rather have it there than mixed with my ripe sealed extracted," declares another. "I don't take any unless its sealed or nearly so," insists another. Personally I lean strongly towards the sealed-or-nearly-so system, but when there's a great deal of unsealed on hand, it makes a difference. Locality becomes a strong factor in the matter. For in some places the bees will finish these unsealed supers during a later flow, finally yielding them as surplus, even tho possibly not so choice as the first crop. But in other places, if left on the hives, there will still be unsealed honey scattered thru too many combs when cold weather arrives.

I said the flow stopped in mid-June. So it did around this new country yard. At home it lingered along for another ten days or two weeks, while still further down on the river road, a beekeeper assured us it would continue for still another two weeks. This difference seems to be the result of different soil conditions. The soil thruout this country yard section is very shallow, with a great deal of rock lying near the surface. Ten days of hot dry weather and the white-clover bloom had gone glimmering. Limited quantities of sweet clover flourishing around encourage me to believe that it may do particularly well here, which will compensate in part for the too early cessation of white-clover bloom. I wish we had tried our sample of the new annual white sweet clover out here instead of at home where I suspect the soil may be a bit acid. Mr. Allen sowed it hurriedly one March morning, without lime, and while by the end of June most of it was less than a foot high with no sign of bloom, a few plants were waist-high and in full bloom.

A certain young sideline friend of ours had bought some bees in a box hive. In the spring, acting under our advice, he tried letting them transfer themselves. He put a new hive with full sheets of foundation, and one or two old combs we gave him, over the old hive, closed the lower entrance, and left them there. More and more discouraged, he kept reporting no queen above. Moreover, he wanted to requeen them. So he sent off for a queen, and when it arrived, I joined him one day in mid-June to help him transfer by the old sticky cut-out-and-tie-in method. Having been warned that they would resent it, I armed myself with particularly bee-proof costume. We opened the super, scorned of the queen, and found some beautiful honey, sealed white and solid to the bottom-bar. Setting this super down on a bottom-board, on the same stand, to give the returning field bees a place to enter during the operation, we carried the old box to another side of the attractive little back yard. There we pried it gently apart, cut out the comb, tied the worth-while brood into empty frames, getting four such combs of brood altogether. A little good honey, in comb too tough and old to be edible, was put into a pan to be strained for the table, while the less desirable honey was put into another pan for feeding back. We found the queen without any trouble and disposed of her. Then from the super, now to be the brood-chamber, we took away all but four combs of the honey, two on each side of the hive, put in two full sheets of foundation, pushing it over against the honey on each side, and hung our four combs of brood in the center. We put in the new queen, in her mailing cage, put on a queen-excluder, set the old cut-out honey in an empty super above, and the job was done. The six combs of honey removed from the super were divided between a nucleus he had and a swarm he had caught. There was no excitement, no robbing, no angry bees, no trouble beyond a few sticky garments, scarcely a sting. The bees hummed quietly around thruout. The next week he reported strings being dragged out of the entrance and, looking in, found his new queen laying. Of course I was as pleased over results as he was, for transferring is one phase of beekeeping I had indulged myself in dodging until this season.

Is there such a thing as a commonplace swarm? Surely not in a sideliner's yard. Always there is something of absorbing interest about them, something particularly exciting, or thrilly, or funny. One Sunday in June (it had to be Sunday because of Mr. Allen's being in an office other days) we drove out into the country to bring in three swarms that a friend had hived for us. Other beekeeping friends met us at the yard on our return, for a picnic dinner under the trees near the yard. Just before dinner, as tho to add a true apiarian flavor to the event, a swarm came out. Mr. Allen went over the fence into the orchard where they clustered, and coaxed them into the swarm-catcher. At the same time, unusual tho it is for swarming bees to sting much, he was stung many times on his bared arms. Meantime I opened the hive.

Fourteen days before, we had found some fine cells in a good colony. Interested to see what success we would have by such a short-cut method of requeening, we dequeened six poor colonies, giving each one a comb with a sealed cell, instead of giving the cell in a cell-protector as we should have done. Personal matters and a few days of rain kept me from examining them later. This Sunday a swarm came from one of these colonies. As might have been expected, we found they had torn down the cell given them, and built a multitude of their own. As fast as these cells were cut that Sunday swarming morning, out jumped the young queens—on the combs, on the ground where the torn-out cells were dropped, anywhere and everywhere, it seemed, till we took more care to kill them in the cells. The swarm was dumped down on a white-painted metal cover in front of the entrance and among the bees marching towards the hive were three queens. Two of them we killed, leaving one that we thought looked larger and more likely mated. While that colony has now a young queen, the stock has not been improved, as this is the daughter of the undesirable one originally disposed of.

A day or two later, when I was alone at the yard, I discovered a large swarm already clustered on a low tree in the orchard. Over the fence with the swarm-catcher I went, but the swarm was so large and draped along so much of the branch that only a small part of it was secured the first time. On the second trial, I gave the branch the usual vigorous jerk and felt the usual peppering of bees strike my hat. This time, tho, the queen must have struck the hat and stayed there. Heavier and heavier it grew, closer and lower it sank on my head, and soon bees like a dark wave began spreading down over my veil. It happened to be a wire veil that morning and carried its unusual weight easily. I must have been an absurd sort of vision climbing a wire fence with my head held so stiff and proud under its weight of live bees. Did I shake them off promptly before a hive? I did not. As any woman would, I went straight to the little mirror in the honey-house (imagine any sort of a house without a mirror!) to get the effect. It was really very becoming. You couldn't see the face at all.

But one swarm made me as nearly miserable as probably any swarm could. It was when I came dashing into the yard the morning of the second registration day for the summer term at Peabody College to get a comb of bees for an observation hive, which I insisted on putting on my table to rival the stuffed owl on the birdman's table! My time was limited; in fact, I didn't have any time at all. And there was a swarm coming out just as I came in! It was fine and big, a thing of brave adventurous wings, that filled me with delight as it hung there weaving its mysterious patterms in the sunshine of that June morning. But I had no time for swarms. Besides, it was hot, that old-fashioned kind of hot, you know; and I was supposed to look more or less cool and dignified in a few minutes at Peabody. The swarm settled on a tall tree, on a high branch. By grasping the swarm-catcher near the end of the pole, and holding it about as high as my head, and bumping it against the lower side of the bough, and doing it several times, and executing each times varied and rapid unknown dancing steps to keep the thing balanced, and perspiring quarts, I got it. I also got my observation hive and whirled back to school. But the little glass-walled comb got one bump too many on the way back, and the next morning I showed my new class a dead queen. It turned out rather well, tho, for the wee colony built three queen-cells and we were able to watch the whole process, including the destruction of two cells, and now we have a young laying queen. Not one to boast of, to be sure, but able to hold her own in a one-comb observation hive.

FROM NORTH, EAST, WEST AND SOUTH

In Southern California.—This has been one of the coolest Junes ever known. It has surely been a boon to the southern California beekeeper, and here's hoping that July will be as favorable for the flow of nectar.

The orange honey crop for 1920 has been harvested and, generally speaking, it has been very satisfactory. In some cases beekeepers were in a hurry to move to the sages, and it happened that the neighbor who kept his bees on the oranges a few weeks longer, got much the best crop. A rank second growth on the black sage in most sections gave a big flow. The purple sage yielded well in only a few sections. Generally speaking, it proved to be a great disappointment. The white sage has been blooming for a month and in many places will continue well thru the month of July. The flow has not been at all abundant and in certain localities is reported as not yielding any honey. With us it has proved to be uncertain from year to year and this year has been only fair. The wild buckwheat is secreting nectar quite freely. In places where moisture is sufficient this shrub continues to furnish some honey until the frost comes.

The Imperial Valley is getting its normal crop. They never have had a failure there, and it is only a question of a larger or smaller crop from year to year.

Some large apiarists in southern California figured on 100 per cent increase and an orange-honey crop. In a few cases, according to the reports, they succeeded.

We hear that the Orange County beemen are getting the best crop in 40 years. There are perhaps two or three years in the last 40 years that about equal this year for average production, but the high price of honey will make this, financially, the banner year during that period. Old-time apiarists say that 1884 and 1895 were great years for honey-making. The secretary of the Orange County Beekeepers' Club says that he believes that the county this year will produce 150 tons of honey. The mountains are still covered with bloom, and the bees are working to their full capacity. Honey is bringing a good price. The beekeepers are retailing it at from 22 to 25c per pound, and the stores are selling it for from 30 to 33c per pound.

Buyers have been around from time to time but they are not as plentiful as before the Exchange was organized. They are ready to buy if they can get the honey a few cents below the market price. Before the honey was ready for market, they talked about 20 and 21c; but now they give us the old "dope" of a lower market price, a big crop, etc. It has gotten to that stage where the beekeeper is better informed than he was a few years ago, and he is much more able to look out for his rights.

The California Honey Producers' Co-operative Exchange now advances 60 per cent of the market price or the price that a certain grade of honey is selling for at the time of its delivery to the warehouse. Additional advances are made from time to time as the pool in which the honey has been placed is sold. When the honey is all sold, the final adjustment is made and the balance remitted to the beekeeper. Many beekeepers object to the "long wait for their money," as they call it. It is an innovation in the way of selling our honey, and the writer is frank in saying that he did not like it at first. But the more it is thought over and its workings observed, the more he is convinced that it is a good thing for the great majority of honey-producers.

Heretofore Mr. Buyer came along and said, "Well, how is the honey, Mr. Jones?" "Oh, I have a few tons." "Want to sell it?" "Yes," says Mr. Jones, "I need a little money and would be glad to sell it." "All right," says Mr. Buyer, "I was out this way and just thought I'd call and see you. The market is a little weaker, but we have an order for a car and will place one if we can get it at the right price. I can pay you——," naming about what we now get as the 60 per cent advance in the Exchange. "Well, that is pretty cheap, but I want to get rid of my honey and you can have it." The money is practically all spent in a few weeks and then—well, there's a wait until next year. In the Exchange we get our money from time to time, over a period of several months or, when the wax is included, thruout the year. In this way we are never "broke," as the saying goes. The fellow outside, by standing under our umbrella, will sometimes get more for his honey and will not share in the expense. But every Exchange in California has proved the salvation of the industry it represents.

The county ordinance plan of making laws or ordinances for the moving or shipping in of bees is getting to be a nuisance in California. One beekeeper, who had his apiary prepared and ready to ship, at a considerable expense of time and money, found at the eleventh hour that the supervisors of the county into which he expected to move had passed an ordinance prohibiting the moving in of bees except in combless packages. Now it seems to me that the State should have laws strict enough to protect each county, and yet liberal enough so that the honey crop of the State can be harvested to the best advantage. This should be done irrespective of the fact that a county line separates a location on which an early honey flow is the only one, and by moving a few miles a beekeeper can take advantage of the probability of two or three different sources

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of honey flow. The general schedule for the gathering of honey in southern California is: orange and mesquite in March and April; sages and wild buckwheat in May and June; sweet clover, alfalfa and lima beans in July and August; and often all of them within a radius of 75 or 100 miles—but there are county lines between in most cases. Let us get together and have State laws that protect from disease by contamination, but are flexible enough so that the beekeeper who has his tens of thousands invested in the business can carry on his chosen pursuit unhampered by these petty county ordinances.

Corona, Calif. L. L. Andrews.

* * *

In Oregon. The weather is very warm and both white and alsike clovers are beginning to dry up and honey to thicken; but we have had a wonderful flow from these sources, and its quality is of the best.

My own colonies, mostly in 13-frame hives, are from three to five stories high. These are not easy to handle and one needs a good backbone to lift them bodily. I am planning now to move by auto truck in about 10 days down the Columbia River about 100 miles into one of the fireweed districts where thousands of acres await the bees. According to those who succeed annually in securing a fine crop, it requires about six full-depth supers for each colony, as fireweed honey when flooding is thin and not ripe enough to seal or cap for some time after gathering. Beekeepers always report piles of supers full of uncapped fireweed honey before any is ripe, but gathering goes merrily on, if combs enough are at hand to take care of the crop.

Here's a new one to me: An Idaho beekeeper reports some of the big men this year have crippled the queens intentionally in order to bring about superseding conditions. The method employed was to clip a leg or two from her majesty. It seems pretty radical, but the end may justify the means. At any rate, the report was that it apparently was a success; that supersedure did take place, and so far the young mothers of their own raising had not swarmed out. I will prefer to await further developments, however, before adopting it,—wont you? [This is not a new trick, at all, and is just as cruel as ever.—Editor.]

Portland, Ore. E. J. Ladd.

* * *

In Texas.—The spring honey crop is harvested. In spite of cold, heat, wet, and dry, the yield has been above normal. The huajillo (wahea) flow is reported to be the best since 1914, and the horsemint has been much prolonged because of the rains. As usual, much of the horsemint honey has been extracted and placed on the market in its unrefined condition. As this half-done honey ''gasses'' it is a nuisance to the honey dealer. Horsemint honey should be left on the hive until midsummer. Whether or not it comes, the beekeepers of the southwest are preparing for a big mesquite flow.

The beekeepers of Webb County were called together Saturday, June 19, by County Agent Mally. After a brief discussion of the advantages of a beekeepers' association, such an organization was effected, with Ambrose Johnson as president and G. R. Shiner as secretary. Every stand of bees owned in the county was represented either by owner or owner's proxy. This is one of the few associations that is taking advantage of the special discount offered by most dealers on collective orders. They also plan to ship combless packages, one operator doing the work and shipping the bees of all the members. The honey flow of the southern part of this county is large and persistent. Huajillo is a very common plant and rarely fails to yield. In the irrigated field along the river alfalfa blooms almost the entire year.

The summer Short Course of A. & M. College will be given August 2-6. Professor S. W. Bilsing will have charge of the work in beekeeping. Lectures and demonstrations will be given. The apiaries of the College and Experiment Station can be visited by those interested. Professor Bilsing will be assisted in this work by Dr. Tanquary, State Entomologist, C. S. Rude, State Apiary Inspector, and others.

During the Farmers' Congress, which will be held at Texas A. & M. College, August 9, 10, and 11, the educational section of the Texas Honey Producers' Association will hold its annual meeting. Besides the regular business, the following are some of the papers that will be given: ''Report of Delegate to National Conference,'' W. C. Collier, Goliad; ''Interstate Beekeeping,'' W. O. Victor, Uvalde; ''Beekeeping Literature,'' Louis H. Scholl, New Braunfels, Texas; ''The Status of the Apiary Inspection Work,'' Dr. M. C. Tanquary, State Entomologist, College Station; ''The State Experimental Apiary,'' J. N. Mayes, Dilley; ''The Course in Beekeeping at A. & M. College,'' S. W. Bilsing, College Station, Texas; ''Side Line Beekeeping,'' Ambrose Johnson, Laredo; ''The Combless Package Bee Business,'' E. B. Ault, Calallen; ''Economic Aspects of Apiculture,'' R. R. Reppert, Extension Entomologist, College Station; ''Outapiary Systems and Management,'' Arthur S. Sternenberg, Lockhart.

Thru the South and especially in Texas the cowpea gives a very marked honey flow. The nectar is obtained from extra nectaries located at the bases of the flowers and leaves. The secretion is very early in the morning. The honey is mild and when pure is dark amber. The cowpea is one of the crops that

FROM NORTH, EAST, WEST AND SOUTH

it will pay any beekeeper to plant, since to its value as a soil builder and a forage crop must be added its proportion of the honey crop. Many farmers have not raised this crop extensively because of the ravages of the cowpea weevil. The Texas Agricultural Experiment Station, College Station, Texas, has just issued a bulletin on this insect and its control. It is by F. B. Paddock and H. J. Reinhard. The junior author has made a three-year study of this weevil. A copy of this bulletin, No. 256, can be obtained by writing to the director of the above station.

College Station, Tex. H. B. Parks.

* * *

In Ontario. Last month I stated that we were having unusually dry weather here in Ontario. It is said that one extreme follows another, and this certainly seems to be the case so far as weather is concerned, for two weeks ago from this date (July 9) rain came and it has rained nearly every day since.

Alsike clover, altho in abundance around us, yielded very little, and reports from over the Province indicate that this condition is quite general. Up in Simcoe County, where we have two yards, alsike has yielded heavily, and just why the difference between there and here is hard to understand, as conditions seem quite similar as to moisture, quantity of clover available, etc. In the home district the yield from alsike was practically nothing; but at present we are havnig a very heavy flow, so heavy that in the last six days the bees could work six hours a day. This flow is from sweet clover, which is found in large fields around us for the first time in our experience. Talk of sweet clover being a slow yielder of nectar! Just at present it reminds one of basswood at its best; but, as stated, we have had little fair weather since it came into bloom. However, it will bloom into August; so we should have some surplus yet, if the clover keeps in the same humor that it is in now. Basswood, wherever it is in quantities to amount to anything, is looking the best for years, and reports from all correspondents say that prospects are good for this very uncertain yielder. If sweet clover continues to be grown for seed purposes here in Ontario, it will mean a big change for many beekeepers. It follows after alsike is past its best and means a continued flow right into August. For the first time since buckwheat has been grown here in our section, the large fields, coming on fast, are not viewed with any too much satisfaction. Undoubtedly the buckwheat will come into bloom while sweet clover is at its best, and so the honey may be discolored. However, beekeepers will be thankful for what they get, even if some of the honey gets flavored with buckwheat and has to go for less than the white honey would bring.

This year at three widely separated yards we have three cases of paralysis, Isle of Wight Disease, or other ailment corresponding to the usual diagnosis of the foregoing maladies. The best colony at the home yard, headed by a fine Italian queen, was first noticed about four weeks ago as having something wrong with it. Large numbers of bees would be seen around the entrance with wings all a-quiver and soon falling in front of the hive to die. Contrary to the way the bees act in the so-called disappearing disease, when the bees rush thru the grass for some distance from the hives, ultimately dying in piles in depressions in the ground, the bees in this case rarely get over a foot from the hive entrance, and the dead soon pile up so that the stench is very disagreeable. On opening the hive, hundreds of bees are noted with quivering wings, and many have bodies distended. If opened, a pale yellow fluid is in evidence, and it is in large quantities considering the size of the bees. The brood was always normal till the old bees got too few to attend to it, and the queen was an extra-good one, keeping the frames solid with brood. This colony is just about at its last, and I notice a few bees in the next colony to the sick one, showing some ailing signs now. Another case is at a yard four miles away, and the third at Binbrook apiary, 80 miles from here. All are identical as to symptoms. Is anything known to the fraternity to counteract or cure such a malady? and, again, is this the genuine Isle of Wight disease?

As already intimated, it looks like a light crop of clover honey in Ontario, except where sweet clover is grown; but, of course, such localities are the exception rather than the rule, altho if the price of seed keeps up, we may have to reverse that ruling in the near future. Basswood may help out, but it is a fickle yielder here in Ontario. All this bears directly on the matter of prices for honey, and so far as I can learn there is nobody who seems to have a definite idea as to what honey will sell at. Sugar has again advanced and is selling in a wholesale way at $21.21 in Toronto at present, and is, I believe, hard to get in quantity lots. Certainly it does not look as if honey will be cheaper than last year, and, if the crop is light, it may go a good deal higher. Local demand is already fair; but we have not extracted any, as the weather has been wet continuously for about two weeks, and honey is not quite in shape.

Markham, Ont. J. L. Byer.

HEADS OF GRAIN FROM DIFFERENT FIELDS

My Experience With Aluminum Combs. I do not feel that I know a great deal about the aluminum combs, as I used them only last season when I had only the one set of ten combs. It was a very poor season to try them, as the honey flows were very scant here except the fall flow, and then the bee force was much below what it should have been at this time of the season. In a fairly populous colony during the fall flow I had one aluminum comb that was filled solid with honey and completely capped. Another of these combs in the early summer was put with a new swarm and this colony filled it solid with brood over and over; these two combs were in the hives with wax combs and the bees seemed to take to them as well as to the wax combs.

But I had other colonies I did not succeed in getting to use these combs, altho it may have been a lack of bee force and not enough nectar coming in. I had one colony of which the queen seemed to accept the combs all right, but the bees did not. One day I would find eggs in the cells; then I would look, thinking to find brood pretty well advanced, but would find nothing save the empty cells. The eggs would be removed. Another little experience I had with the aluminum comb was this. I had a colony that stood out in the sun, without any protection in the way of shade, and in this hive I had an aluminum comb well filled with brood. The excessive heat killed the brood except what was in the wax combs. I then took the comb to a hive that had shade, and no brood died after that. Of course, if the hive in the sun had been protected as it should have been, I do not think any of the brood would have died.

I wish to give the combs another trial this year, making an impartial test with the wax combs. E. S. McElhaney.

Mt. Vernon, Ind.

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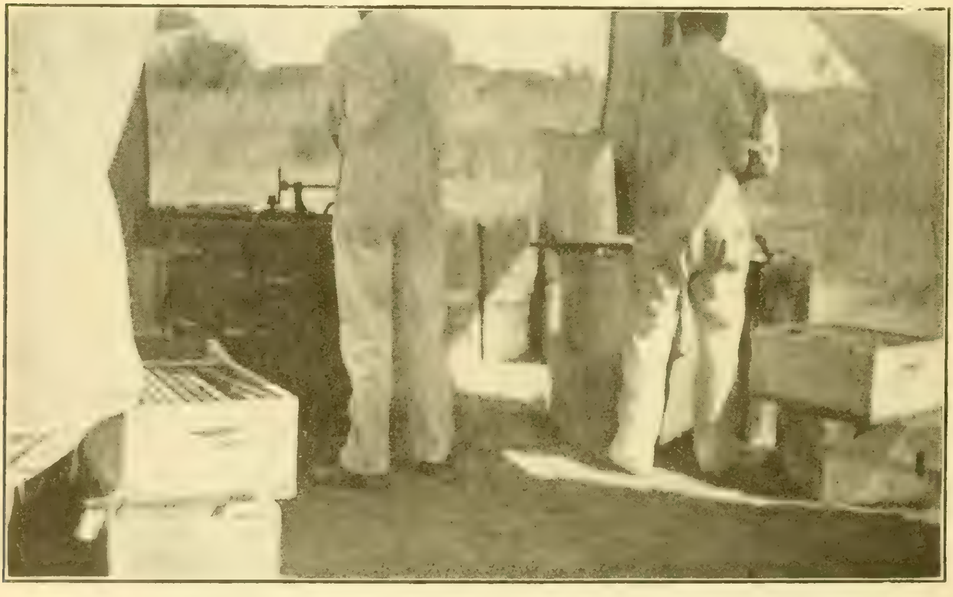
Lusher's Latest Extracting-Tent. In Gleanings for July, 1919, page 422, I gave a picture of an extracting-tent in the midst of à 400-colony apiary belonging to A. E. Lusher of Pasadena, Calif. I now have pleasure in presenting two views of a new and modified bee-tent which he at present uses. Unlike most beekeepers of California he does not make use of an extracting wagon nor a permanent building for extracting at each yard, but uses, rather, a portable outfit made up of canvas and mosquito netting — something that he can fold up in a small compass, load it on the wagon with his extracting-outfit, erect it on arrival at the outyard, and then begin operations. Mr. Lusher is known as one of the most extensive honey-producers of sage and orange honey in California. The last I knew he had about 1,800 colonies. He is one of the beekeepers in that State who



Interior of the portable extracting-tent. The Lusher boys use portable extracting outfits, using hand power only.

understand California conditions and are able to make the bees pay. E. R. Root.

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Too Early Orders for Bees and Queens. In reference to your editorial on "Too Early Orders," page 329, June Gleanings. I value nuclei and pound lots of bees much more highly at the beginning of fruit bloom than I do at the close. In our section of the country it is not a bit more likely to rain during early fruit bloom than later, and receiving the bees early makes a very great difference in the strength of the colony when the clover flow begins. Moreover, if a breeder agrees to do a thing and does not do it, he is the man who should make good the loss. Suppose I buy a two- or three-frame nucleus with a young queen in each for delivery May 1, and that I get them 15 or 20 days late. I have lost the use of that queen for laying every day and at a time when every bee would have been of value to me for the clover flow. The shipper knows this and knows that I did not get the value agreed upon. Therefore, he should seek to make it good. It might be added that generally the stock he ships is not worth, at the point of shipping, what it was at the time he agreed to ship it, but with this the purchaser has nothing to do.

I am afraid that too often the advertiser knows that the chances are he will not be able to carry out his agreement. I will give you an experience of mine. I purchased 50 two-pound lots to be sent by a certain date. They were sent. Owing to a shortage of food, about one-half of them were dead. I wrote to the shipper and he, like a man and without a murmur, replaced those that died in transit. The second lot was not very much better, but I admired the manly and fair way in which the shipper had acted and made no more demands and said no more to him. Justice has a clean-cut live self-interest and often blinds us to what is just, but it should not do so.

I would buy bees in nuclei at the beginning of fruit bloom, but would not want them at all when fruit bloom is over, at a time when there is robbing, and when, even aside from this objection, I could not expect them to do more than build up into a full colony without sufficient winter stores.

Brantford, Ont. R. F. Holtermann.

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A Plea for the Subduing Cloth. I do not think the subduing cloth gets its fair share of attention on this continent. I suppose it is just a matter of habit, depending on how one was brought up. Personally I like to use both smoke and the subduing cloth. But, if I had to choose between the two, I think I would take the carbolic cloth (lysol cloth it generally is now, as carbolic is so expensive). The little nickel-plated box that shaving soap is sold in, is the ideal thing to keep the cloth in, and the cloth should be cheese-cloth. If you keep two cloths, each in its box, then you will always have a damp one to use. When they dry up, as they do very quickly in hot weather, a little water is all that is necessary; so one doesn't have to carry about lysol to dampen the cloth. Suppose you wish to go thru the brood-chamber of a hive that has a super on, and you are a little afraid of the bees as they are cross hybrids. Pry up the corners of the super just enough to put matches across the corners, with each end projecting. Then shake out your cloth and pass the corner of it under the super just inside the match. Do the same at the other

[illegible] and covers as used by [illegible] Notice [illegible] in the background with a grass roof shed over it.

HEADS OF GRAIN FROM DIFFERENT FIELDS

side, or you can wedge it farther back while you get the cloth entered, putting the match at the corner afterwards. Now you can pull your cloth slowly thru the crack. If you meet an obstruction such as a little brace comb, gently saw the cloth from side to side. When it is entirely thru leave it a minute or so. Then you can safely lift off the super and set it down without crushing any bees, as they will all have been driven up. Now you can fold back the cloth and examine the brood-frame. If the bees are angry, leave the cloth on and open up the frames stuck together, down thru the cloth, as it is this jarring that often causes the rushing out and stinging. Blowing down thru the cloth is also a great help. If they are really wicked, be sure to have the second cloth handy. The strength of the soluiton is supposed to be one to ten, but it need not be accurate. By no means am I recommending anyone to discard their smoker. But for those who have not got one handy when asked to look at a hive, the foregoing is a very good method.

North Lonsdale, B. C. Will H. Gray.

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Two Queens in One Cell On June 15 I was preparing to transfer some larvae for queen-raising, and when searching for cells from which to secure royal jelly I was surprised to find a queen-cell about two inches long but not over size in diameter. I removed the sealed larva and jelly until I found an unoccupied space of about ½ inch, then more jelly. After dipping out part of this upper jelly I found another larva, making two in one cell. Did you ever meet with a similar case? As I was not expecting to find the second larva, I did not notice it until part of the jelly had been removed; so I am uncertain as to whether the larva was in its proper position or not. It was up in the top of the cell when noticed, but it may have been pushed there in removing the royal jelly.

Livia, Ky. Hugh L. Lynn.

(Last week some of our queen-cells were sealed when the larvae had just hatched, but we have never known of a case such as you mention.—Editor.)

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Another Way to Remove Pollen. It may be possible that Dr. Miller's, J. E. Crane's or Mr. Alexander's method of removing pollen from combs will work, but I have my doubts. During the season of 1899 I moved from the alfalfa to the Arizona clover district on the west side of the San Joaquin Valley. Then came a flow of nectar and pollen also. In less than two weeks my brood-combs were almost filled with pollen. I removed them to the supers and then to the extractor, where all the honey was removed. I then placed them in water for about 15 or 16 hours, when they were removed, given a good shaking, and allowed to dry. The water caused the pollen to swell, and the drying caused it to shrink, after which I gave them another shaking, when most of the pollen fell out. They were then placed in the brood-nest, where the bees removed the remainder, and the queen filled the combs with eggs.

During part of the season I was short on combs and did not dry them, but placed them in the brood-nest wet and obtained just as

A summer field-meet idea along the lines of "safety first," was worked out by the Herkimer County (N. Y.) Beekeepers' Association last summer. At one of its large meetings a mosquito-netting tent was rigged up for the benefit of the visitors who didn't give their fullest confidence to the amiable intentions of the bees.

HEADS OF GRAIN FROM DIFFERENT FIELDS

good results. I would not advise using them wet except during hot weather and during a good flow of nectar. J. T. Dunn.
San Jose, Calif.

◆

A Pioneer Beekeeper of Colorado. This apiary of W. H. Bartleson, whose home is in Colorado Springs, Colo., is located in the beautiful Arkansas River Valley near Olney Springs, Colo., where alfalfa and apples grow to perfection.

Mr. Bartleson's name is worthy of mention among the pioneer beekeepers of Colorado, as he has done much toward the advancement of beekeeping in that State. When in his employ, I learned that Mr. Bartleson has had much to contend with, foul brood, hail storms, droughts, Mexican bandits, and poison from spraying trees.

In the spring of 1879 he had rheumatism so badly he could not lift his left hand to his mouth. A doctor told him that beestings might help him; so he procured some bees, and holding them against his wrist, permitted them to sting him each day. In less than a month his rheumatism, he says, was all gone, and he was an interested student of bees.

For about the next seven years he cared for from 20 to 200 colonies. He then sold out, but 10 years later, while working in the Santa Fe shops, he was again attracted to bees. He rented 80 colonies of bees, taking care of them at night after the day's work at the shop was done. Seven years later he left the shops and gave his time to caring for the bees. Since then, as previously stated there has been much to contend with. It seemed bad enough when Mexican bandits willfully destroyed 75 colonies, but foul brood was still worse. When it first struck his apiaries it killed a hundred colonies and a hundred more were affected. Altho he manages to keep control of it, still, after 10 years of struggle, there are each year some colonies affected. He shakes the affected colonies upon full sheets of foundation and boils the hives and frames clean, then reboils them in lye water. During the five years since he established his hospital apiary, the disease has given less trouble.

During his entire 40 years of experience with bees his number of colonies has varied from 137 to over 500 and his crop from no pounds to about 36,000 pounds.
Cambridge, O. K. C. Smith.

◆

Suggestions Concerning the Code. In the February issue of Gleanings under "Code for the Sale of Queens and Bees" I notice that another and myself were the only two to make objection to the foul-brood clause in the code. You further state that nearly all signed the agreement. I never had the final code submitted to me for signature, or I should have signed it. I do not want you to think that

An apiary of W. H. Bartleson, who has been a beekeeper in Colorado for forty years, and has had some trying experiences.

because I offered objections, that I was refusing to sign. I most heartily agree with anything that will make for better service in any respect. The code as submitted to me would compel a man to go out of the queen business if he found a few cells of American foul brood. The question I raised was, "Would he do it?" I don't think he would. The latest "reservation" adopted would compel him to advertise that he had disease in his yard. Will he do that? In the rush season when the queen-breeder is working almost night and day and is so busy that he hardly has time to acknowledge orders, will he take time to write the customer that he has foul brood? I rather think not. Now, as we are agreeing to do certain things, let's have a check on each other to see that it is done. Here is a scheme that I think will work. When submitting ads to Gleanings, let those ads be accompanied with a health certificate from the state inspector. If the breeder cannot furnish this, he should state which disease his colonies have so that after the ad can be printed "American" or "European" or both as the case warrants. A new certificate should be furnished each year. I am enclosing my latest certificate and will send another as soon as the inspector can get to me in the spring. I paste one of these on all shipments I make. Anyway, I am for the Code for Queen-breeders, either with or without "reservations." Jay Smith.

Vincennes, Ind.

* * *

The American Honey Producers' League. While the new national association, the American Honey Producers' League, is an organization of beekeepers, for beekeepers, and by the beekeepers, it must not be assumed that it will be antagonistic to any dealer or manufacturer who is willing to co-operate in bringing about better beekeeping and marketing conditions. However, it is well to be on our guard against any propaganda issued for the purpose of spreading dissension in our ranks. That such propaganda is being sent forth by one or more individuals, working ostensibly in the interests of beekeepers, but, it is believed, really for the advancement of outside interests, is a fact which should not pass by unnoticed. Statements that the League is "impracticable," "visionary," and "illegal," together with prophecies of failure, should be considered carefully with respect to their source and the reasons back of it all. It is quite certain that it does not originate with bona fide beemen who understand the nature and purposes of the League.

Beekeeping, it seems, is about the only important industry which remains yet unorganized, and it is evident that the time is now opportune for a national organization of actual producers. The fact that the meeting at Kansas City was attended by delegates from 25 or more State and regional associations, representing more than half of the commercial beemen of the United States, that the utmost harmony prevailed, and that the action of this meeting was unanimously endorsed at the Buffalo meeting, are proofs that there is a demand for an effective organization.

Let us understand fully that it is not an object of the League to form a nation-wide selling agency, as claimed by its detractors in spite of repeated denials, but its purpose is to assist all member associations in whatever activities will benefit the membership and the industry in general. Read again the objects as set forth in the first League bulletin: Better distribution, legal aid, uniform equipment, beneficial legislation, a secretary not three days but every day in the year, crop reports, advertising. We can not afford to turn these down. The League will be what the beemen make it. If the constitution is defective, it can be amended. If the officers do not properly represent us, we can elect others. There is nothing gained by staying out and criticising those who are laboring to improve existing conditions. The fellow who stands back and prophesies failure is not a friend of progress, and for us to give ear to false criticism and propaganda of interested parties is not the part of wisdom. Of course, the League, in order to succeed, must have the moral and financial support of the beekeepers, for without this it will be powerless to carry on its work. Let us get in line for the League, for now is the opportunity of a lifetime to put the industry on its feet.

Valparaiso, Ind. E. S. Miller.

* * *

A Veil That Keeps Bees Out. I have a nice start, 11 colonies all in standard hives, with wired frames. The bees in the packed hives were 75 per cent stronger in the spring than those in the ones unpacked. The veil I use is made of galvanized-wire screen, the top being covered with cloth. It also has armholes, with rubber bands at the bottoms of the sleeves and around the waist. This is a good arrangement for shutting the bees out.

C. E. Killion

Diamond, Ind.

A beginner who says this veil keeps the bees out.

HEADS OF GRAIN FROM DIFFERENT FIELDS

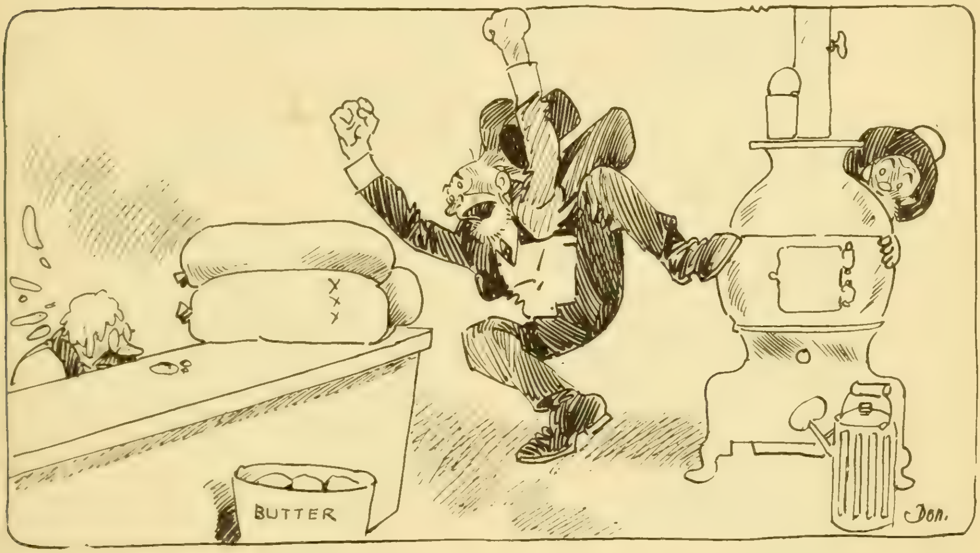
Steaming Foul Brood Frames. My idea of steaming foul-brood frames might be of interest to your readers. I noticed in one of the bee papers somebody suggested that instead of boiling the frames for 20 minutes that they be boiled for 5 minutes in a solution of lye water. Now it has been my experience that any article which is porous, when immersed in lye water unless thoroly soaked to rinse all the lye out, will still retain an objectionable amount, and may when dried form crystals which will grow upon the surface. I had this happen with storage-battery plates.

I steam frames with the equipment on hand. I take a honey tank or extractor and pour in two buckets of water. A frame is now suspended from the top to reach just above the surface of the water, and this frame or false bottom supports all the L. frames that can be packed in. The cover is then put on and the water boiled. This will give a temperature of 212 at sea level. I see another advantage in steaming the frames. If they are not clean of wax when placed in the tank, whatever wax there is will drip off the frames down into the water. If several thousand frames were to be treated, it might pay to turn in a steam hose or pipe from a steam boiler such as is used on traction engines. F. E. Poister.

Morrill, Kans.

Extracting Too Closely.—By Bill Melvir

(With Apologies to Walt Mason.)



If you're bound to be unhappy, if you love to have the blues, if you yearn to feel real scrappy and the grouchy life you choose, just extract your honey closely; make a clean sweep as you go. Do some profiteering grossly; hasten then your bucks to blow. When your honey has all vanished, when the autumn colors glow; when the drones have all been banished, and the stores are running low, ask your grocer for some sugar just to save your bees till spring. Then you'll find the stingy bugger says, "There's nothing doing," bing! He has sold your precious honey, now he has no sweets to sell, 'cepting syrups tasting funny, which your bees refuse to smell. Now's your chance to fume and sputter, call the grocer down and roar. Swat him with a roll of butter, tell your neighbors why you're sore. Beefing, tho, brings home no bacon, and regrets can buy no prunes. Grouchy folks are oft forsaken, for they chant such mournful tunes. If you'd rather sing and twitter—rather be a cheerful gink, just side-step remorse so bitter by the extra honey kink. Then you'll sing and chirp and bubble while you do your daily chores. Nothing drives off Old Man Trouble like beehives crammed full of stores. And when next June, bright and sunny, spreads again its flowery robe, then the man who left the honey is the man who rides the globe.

GLEANED BY ASKING

Iona Fowls

Question.—In my four years of beekeeping I have never been baffled like I was last spring. My bees were weak, very much so, as the winter was long and hard. This year, before swarms generally issue, a tiny swarm, not longer than my hand, left their hive, taking every bee except, by actual count, ten little new nurse bees, and just a little brood no larger than a silver dollar. I thought this a strange freak of theirs; but when I found two more empty hives, and in the same condition, and, I forgot to mention, not even a queen-cell, or anything that looked like one, I gave up the problem. There were plenty of eggs in each hive, but just a tiny little bit of sealed brood. If they had been strong, I should have expected it; but, as I say, they were a long way from swarming condition. I can't make them out. You see they leave nothing behind them; no queen-cell, no brood—only five or ten little bees. What do you think of those queer bees of mine?

Indiana. Mrs. Rose Moller.

Answer.—Very weak colonies often do swarm out in the spring just as you describe, sometimes leaving none but hatching bees in the hive; at other times leaving no bees whatever. Also when colonies run short of stores in the spring they often leave in this way, sometimes even leaving brood. From your description we think that the bees probably left because the colonies were too small. The brood-nest should have been contracted to only as many combs as the bees could easily cover, or else the colonies united with others. A colony may leave the hive in this way when there is apparently no unsatisfactory condition such as weakness or shortage of stores to explain the matter. We had a strong colony in a clean hive with enough stores and sufficient room, that this spring left their hive with six frames of brood mostly capped, and yet there was no queen-cell in the hive. We have never heard of a similar case and do not know why the colony left.

Question.—In your plan to prevent swarming do you give the hive containing the raised brood an entrance? Alexander insists in all his writings the bees from the raised hive must work thru the entrance to the bottom hive.

New York. E. D. Howell.

Answer.—We leave no upper entrance.

Question.—After July the bees here seem to kill all the drones. Is it possible to raise good queens after this date and be sure of mating? (2) After supers are put on do bees keep brood-chamber filled with honey?

Alabama. W. C. Smith.

Answers.—(1) Yes, we do not think you will have any difficulty in getting your queens mated. The bees will see to it that drones are also raised at the same time in order that the queens will be properly mated. (2) After the supers are on, the bees may still store a little honey in the brood-chamber; but, as fast as the queen needs the room for laying, the bees will remove the honey from the lower story and carry it up into the supers. In rare cases bees do not remove the honey quite as fast as they should and such colonies become "honey-bound." In such cases we would suggest removing a few frames of honey and replacing with drawn comb next to the brood. Or, in case the queen seems at fault, she should be replaced.

Question.—How could I rear queens and requeen 100 colonies after the honey flow?

Ohio. D. Smith.

Answer.—A method that was recommended to us by J. E. Thompson of Medina and one that we have used with satisfaction is as follows: To make a cell-finishing colony, choose a strong colony, preferably hybrids, and place several combs of capped brood (a little unsealed brood will do no harm if one tears down those queen-cells that will be started in it) in the upper story above an excluder, leaving the queen below. Feed this colony continuously with a Boardman feeder, using three holes in the cover. A day or two later prepare the queenless colony. To do this, take a strong hybrid colony and place the queen and two or three frames of brood with honey in a nucleus at one side of the old stand, and leave on the old stand the queenless bees together with a frame of new pollen, some honey, and one or two frames of capped brood. These queenless bees should be sprinkled with water and fed freely. Four or five hours later change the feeder-cap, giving three holes, and give the queenless colony cell-bars with 60 to 80 cell cups with young larvae from any colony, crowding the cells close together on the bars. The next day put these cells in the cell-finishing colonies, three bars of ten each between frames of brood. The next day take out the graft and replace the larvae with young larvae (18 to 24 hours old) from a choice colony, and replace this second graft in the cell-finishing colony between frames of brood. (Altho we also made this second graft we question whether it is really worth the extra trouble.)

Now while the cells are being finished, prepare the nuclei, of three to five frames, using mostly capped brood, but a few eggs and larvae, and a few extra bees besides those adhering to the combs used. Provide these nuclei with covers and bottom-boards and place each of these nuclei above a colony that is to be requeened, leaving the entrance contracted and facing in the opposite direction from that of the lower hive.

After the cell-finishing colony has had the cells ten days, take them out and distribute one apiece to the nuclei prepared two or three days before, giving the queen-cells in cell protectors. If any queen-cells are found in the nuclei they should be torn down when giving the cells.

At the end of two weeks, if the queen is found laying, put all the unsealed brood in the hive above and kill the old queen. Also remove the bottom-board of the upper hive and between the two hives put a screen for two days, when it may be very quietly removed and a single layer of newspaper substituted.

We like this plan because there is no break in brood-rearing and it can be used even in the case of cross colonies during a dearth of nectar.

Question.—I have an outyard five miles from the home yard and I am going to requeen this outyard and then would like to carry queen-cells from it to the home yard. What will it be necessary to do in order to keep from chilling the brood in these cells while taking them from one yard to the other?

Colorado. Edward Phillips.

Answer.—If the queen-cells are carried from one yard to another during warm weather, all that will be necessary is to cover them warmly with cotton batting. They should, of course, be moved carefully and without much jarring.

Question.—Kindly advise me the best plan for treating honey-bound brood-chambers without taking away brood, young bees, or honey? If I remove a few of these frames that do not contain brood or queen, place them in another hive body and place this above two supers with escape-board between, allowing the bees to leave and then removing escape-board, would they go back to this hive body and carry the honey down into the supers where it is wanted, or will it be necessary to remove frames after the bees have deserted them? Or, have you a better way?

New York. A. M. Cole.

Answer.—The plan you suggested would hardly do. Better remove some of the frames of honey from the brood-chamber and place them in the super above, and then place two or three frames of drawn comb toward the middle of the brood-chamber. If, however, you prefer not to remove combs from the lower story, you can perhaps bring about the same condition by taking your hive-tool and marring the cappings of the honey near the brood. After the cappings have been broken in this way, the bees will probably remove the honey from such cells and carry it above, thus leaving room for the queen to lay below.

Questions.—(1) How long would it take a colony to draw out combs from foundation in Hoffman standard frames? Would it not spoil the whole season for honey gathering? (2) Can I store drawn combs until next year, and can I store frames of honey until spring? Will the combs not spoil or get moldy or musty or mildewed. I have a tight chest in the basement where there is good ventilation and no extreme heat or cold. Will this do for storing frames of combs and honey?

Iowa John T Stoughton.

Answers.—(1) The length of time would depend upon the colony itself and also upon the honey flow. During a heavy honey flow a good strong colony might draw out such foundation in two or three days. (2) As to how long it will be safe to store combs of honey without danger of the honey's granulating, will depend upon the source from which the honey was obtained, some honeys granulating much more rapidly than others. Here in our clover locality, we always keep a few frames of honey over from fall until spring and seldom have any trouble from granulation. When keeping such combs during the summer the main trouble is the possibility of their becoming infested with wax worms. You need not fear their becoming moldy or mildewed if they are stored in a dry place. The chest that you suggest storing them in would be all right, and, yet, you would not need to go to that trouble. (See Talks to Beginners.)

Question.—How can I increase after the close of the honey flow?

New Hampshire. Robert Forsyth.

Answer.—For making increase we often advise the following plan:

Divide the colony into two, filling the remainder of each hive with drawn combs. Two-thirds of the bees and all of the sealed and hatching brood are placed in a hive on a new stand, the entrance being contracted and a ripe queen-cell or good laying queen introduced. Both of the colonies should be built up by slow stimulative feeding, provided there is no honey flow at the time. Many of the bees from the new stand will return to the old stand, but all of the young and hatching bees will remain to keep the brood warm.

Ira D. Bartlett of East Jordan, Mich., uses a plan that we have never tried, but one that he thinks has merit. He puts supers of drawn comb above strong colonies and leaves them two or three days until a little honey has been stored in them, and then removes the old hive to a new stand and on the old stand places this new hive of drawn comb and honey and the old queen. When the fielders return to the hive they will find their own queen there and will continue as tho no change had been made. He says that such colonies will build up into strong ones in time for winter.

Another good authority (R. F. Holtermann, we believe) during the honey flow makes small nuclei whenever he finds extra queen-cells handy and then by the end of the flow when these nuclei have laying queens, he places several supers of honey above each nucleus, being separated from it by a bee-escape board. At first thought no one would expect the bees from the supers to return to their old location; but, as a matter of fact, he says that many of them will stay and increase the size of the nucleus, and that in this way he has been able to build up good colonies after the flow. If you try either of these last two suggestions, we would be very glad indeed to have you report concerning your success.

Question.—Will you kindly explain in your August number the method of preparing and using a carbolized cloth for putting the queen below and clearing the supers of bees.

New York. T. H. Carter.

Answer.—A piece of cotton cloth a little larger than the super is soaked in a solution made of one part of carbolic acid to nine parts of water. After wringing out the excess of the solution remove the cover of the hive, using a little smoke. Then lay the damp cloth on the super and replace the cover. In a few minutes the super will be free of bees.

Question.—I have one colony that is very strong. They have one super almost full, but they haven't swarmed, tho they have started queen-cells. Would it be practical to take the frame that has the queen-cell and give it to the weak colony after the cell has been finished?

New York. D. E. Curtis.

Answer.—Our advice is to get the queen-cell out of this hive immediately so that this colony may not be inclined to swarm. We also advise that you get the queen mated before you give her to your weak colony. In this way the old queen in the queenless colony will continue laying until the time that the virgin becomes a laying queen. To accomplish this you could easily remove from your strong colony two or three frames of bees and brood, one of which, of course, contains a queen-cell. Care should be taken not to remove the queen. It would be well to take one or two frames with brood and one with some honey. These frames should be placed in a hive on another stand and the entrance contracted to a small opening. As soon as the queen becomes mated, you may then kill the queen in the weak colony and unite this nucleus with it.

Questions.—(1) Would it be safe to take all the honey but that in the brood-chamber or bottom story in the fall? Or, would you advise leaving a super on the hive? (2) Will Italian and black bees be all right side by side? (3) One of my hives seems to be full of drones instead of workers. What can be the trouble? Will the bees live thru the winter as well with so many drones? (4) What is the cause of bees bringing out their young ones and destroying them? The hive hasn't any super on. Would that have anything to do with it?

North Carolina. Paul Southard.

Answers.—(1) At the end of the flow the supers of honey should be removed and the colony in the brood-chamber left with at least 30 pounds of stores for winter. If you find that there is not as much honey as this in the brood-chamber, it may be necessary for you to exchange some of the frames of the brood-chamber which do not have brood in them at the time for some of the full frames of honey from one of your supers. Whenever you have any choice in the matter it is better to choose those frames of honey in which the comb is old, since the bees winter better on such comb. (2) There is no reason why your Italians and blacks should not be side by side, but we think quite likely you will want to Italianize the blacks since Italians are so much more desirable. Of course, if you raise a young queen in the apiary, when she flies to be mated, she might very easily mate with a black drone, but might also do this if the two hives were in the same apiary, even if they were not side by side. (3) You have not given us a complete enough description so that we can be certain why there is such an excess of drone comb. It may be that there is no good laying queen present and that you have either a drone layer or laying workers. In such a case you would find no worker brood at all. In case you have a queen that is just beginning to fail you might have a large amount of drone brood and yet have some worker brood. There is one other possibility, and that is that you have old combs that have too large an amount of drone-cells. If so, it would pay you, during the flow, to cut out such drone comb and replace it with worker comb. Any colony that has a large number of drones in the fall is abnormal. Otherwise, the drones would be killed at that time of the year. Unless a good queen is introduced in time so that workers may be hatched before winter, you could hardly expect such a colony to live over winter. (4) Sometimes when brood has become chilled or overheated, or, when wax moths are at work in the comb, bees may be seen pulling the young ones out of the hive. There is also an abnormal condition, which often happens at this time of the year, in which you might mistake the actions of the bees, thinking that some of them were pulling out others and killing them. The condition to which we refer is often called the ''Disappearing Disease.'' The sick bees are often pulled out of the entrance by the well bees, but they are not killed by them. In this case you will probably see little bunches of these affected bees in the grass in front of the hive. The presence or absence of the super has nothing whatever to do with the bees' pulling others from the entrance.

Questions.—(1) In your talk in the May issue, page 295 you say "in 21 days from the laying of the egg the bee "*hatches*." Wouldn't emerges be better? Also on page 296 you say "put a queen-excluder between the two colonies" instead of "between the two stories." (2) Under "Life of the Queen," you say of queen-cells, "as soon as they are nicely started the queen deposits a fertilized egg in each." You may be right, but I never knew a queen to lay in a queen-cell, and altho they may sometimes do so, they more often enlarge a cell containing an egg or larva. Am I right?

Wyoming. John M. Gibbs.

Answers.—(1) Thank you for the corrections. You are quite right about it. (2) In the past we have usually avoided this question by saying the eggs are deposited in the queen-cells. We have never seen a queen deposit an egg in a queen-cell, nor do we know of anyone who has. Furthermore, we know that there are some authorities who question whether the queen ever does this. We do not believe that the bees generally build the queen-cells around the eggs. As we all know, the queen-cells in a colony from which the queen has been suddenly removed differ greatly in appearance from ordinary queen-cells. In fact, they have more the appearance of having been built about the eggs or larvae, as we believe they were. It seems quite possible, however, that bees usually move the eggs into the queen-cells. We do not know.

TALKS TO BEGINNERS

By Iona Fowls

IF some time elapses between the main honey flow and the fall flow, the beginner will find his bees need very little attention, yet the little work that should be done is very important. This work is to examine carefully all colonies and be certain each is in normal condition with a laying queen and enough honey to last until they are again able to gather.

Necessity of Rearing Brood.

Immediately after the main honey flow, queens often lay very sparingly or even stop entirely, so that in many cases very little brood is reared for several weeks. Now this is a very serious matter, for, since it requires five weeks to produce a mature field bee, it is clear that unless brood is being reared at this time(the last of August and the first of September in the clover regions) the colony will not have enough young bees for good wintering. The old worn-out bees will die during the winter, and, if there are but few young bees, the colony will dwindle and probably die by spring. Of course, in case of a fall flow the queen would in the fall rear more brood; but, even if none of this brood chilled, many of the young bees would emerge from their cells so late that they would have no chance for flight before winter.

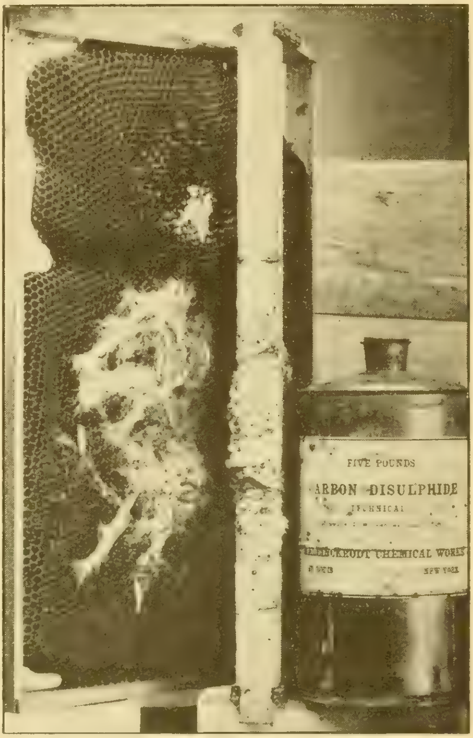
Young queens will continue laying after the main flow, but old ones are not as apt to do so. Therefore, unless the queens are young, it would be a good plan to requeen with young queens.

Need of Sufficient Stores.

During the main honey flow the brood-chamber often becomes so crowded with brood that there is very little room for honey. So that when the supers are removed, the colony is left short of stores. Unless stores are supplied to them, such colonies may dwindle to such an extent that they will be worthless or will have to be united with other colonies in order to make them strong enough for winter. As soon as the supers are removed, therefore, it will pay the beekeeper to examine the colonies and if he finds any without stores, to exchange combs having no brood for combs of honey from the super, or, if he has no such stores, to feed his colonies a good hard candy. (See recipe, page 231, April Gleanings.)

Care of Combs.

Last month we advised the beginner to pile his sticky extracting combs on the hives for the bees to clean. Before the beginning of another honey flow these supers should be removed and stored in nice, straight piles to which moths cannot gain access. These combs should be examined at least twice before winter to be certain they contain no moths. Any time moths are found in unused combs, they may be piled over strong colonies for the bees to destroy the moths or they may be fumigated by placing an empty super at the top of four or five moth-infested supers, piled carefully on a level surface, so that none of the gas can escape. Place in the empty super at the top a few ounces of carbon bisulphide (two ounces is required for 10 cubic feet of space) in an open dish and then cover the pile of supers tightly. This fumigation should be done outdoors, since the fumes when mixed with air are inflammable.



Moth web and cocoons in center of a brood-frame.

Marketing.

One may perhaps wish to keep all the honey for his own family, but if he decides to sell any of it, he should take pride in its presenting the best possible appearance when ready for market. The section boxes should be carefully scraped, as recommended in our last lesson, and the extracted honey should be sold in clear, colorless glass jars that best display the beauty of the honey. Just because the beginner has a small amount to sell, let him not sell at half price. He should receive just as large a price as does the large producer.

JUST NEWS

Editors

THE Western Honey Bee for July said: "No doubt there are many beekeepers in California who will dispute that it's a good honey year, but taking the State all over, and the honey producers, by and large, it is true. There are spots in the State to which this would not apply; but they are but spots compared with the vast area wherein the honey crop is good."

A summer meeting of the New Hampshire Beekeepers' Association will be held at Durham on Aug. 18, at the same time as a meeting of the State Horticultural Society. Editor E. R. Root of Gleanings in Bee Culture, and J. E. Crane of Middlebury, Vt., are on the speakers' list, and a largely attended meeting is expected.

An organization meeting of stockholders of the Michigan Honey Producers' Exchange was held on June 29. The purpose of this exchange is to buy and sell honey, wax, beekeeping supplies, and other things pertaining to the bee industry. The capital has been placed at $10,000, divided into 1,000 shares of par value of $10.00 each. As soon as $5,000 worth of shares is subscribed for, the articles of incorporation will be filed. Future plans and purposes of the organization were to be fully discussed at the summer meeting of the Michigan State Beekeepers' Association to be held at Boyne City on July 28.

Rules for grading honey have been established in Wisconsin and will go into effect on Aug. 12. According to these rules every section of comb honey and every can or other container of extracted honey sold must be stamped or labeled with the grade, color of the honey, and a number showing the producer or packer, or else marked "ungraded." The exact rules may be obtained by writing directly to the Wisconsin Division of Markets at Madison.

The fifth annual meeting and basket picnic of the Eastern New York Beekeepers' Association will be held at the home apiary of Augustus Sweet near West Berne, Albany County, N. Y., on Saturday, Aug. 7, at 10 a. m. For particulars address S. Davenport, secretary and treasurer, Indian Fields, N. Y.

The Aluminum Honeycomb Co., with factory and office at Pasadena, Calif., has been in the hands of a receiver since June 3, and the plant has been shut down. The promotors, Messrs. Andrews and Ratliffe, are out of the plant, which has been disposed of by the receiver for $2,500 to two young men from the East, J. H. Duffy and C. W. Diehl, who have incorporated and will continue the manufacture of the combs at Pasadena. Mr. McDonald, the inventor of aluminum comb, has taken an active interest in the business under the new proprietorship. The liabilities of the old company will greatly exceed the assets. The receiver expresses the opinion that the old company will not pay more than 25 cents on the dollar. A petition in bankruptcy has been filed.

The Georgia Beekeeping Association was organized on July 3 at a meeting held at Waycross, at which 75 Georgian beekeepers were present. The officers chosen were: J. J. Wilder of Waycross, president; vice-presidents, John W. Cash of Bogart; W. C. Barnard of Glenville, A. B. Crenshaw of Pavo, W. H. Young of Bainbridge, and W. L. Wilder of Macon, each being chosen from a different part of the State to facilitate statewide organization; the secretary is Mrs. Madge Merritt of Brunswick, and the treasurer is C. H. Herndon of Waycross. Hon. N. L. Stapleton of Colquitt and J. J. Wilder were chosen to present the claims of the association to the legislature and ask for a foul-brood law and an appropriation for its regulation. American foul brood has made its appearance in serious infections in northern Georgia near the South Carolina line among some of the best apiaries of the State, where it is believed to have been introduced thru shipments of nuclei made to Georgia from States north. The organization was effected with much enthusiasm on the part of beekeepers present who represented 50,000 colonies. J. J. Wilder entertained the visitors in his factory, where dinner was served to the delegates attending.

The 28th annual session of the Texas Honey Producers' Association will be held at College Station, Texas, Aug. 9 to 11. E. G. LeStourgeon is president and Alma M. Hasselbauer of San Antonio is secretary and treasurer. An excellent program has been prepared. On Wednesday afternoon a field meet will be held at the Experiment Station apiary under the direction of H. B. Parks, State Apiculturist, with practical demonstrations of colony manipulation by C. S. Rude, State Inspector of Apiaries.

The Quarterly Bulletin of the State Plant Board of Florida for April gives the report on inspection and eradication work of beedisease from June 1, 1919, to March 31, 1920. The number of apiaries inspected was 195; number of apiaries infected with American foul brood, 23; number of colonies inspected, 8,951; number of colonies infected with American foul brood, 78; number of colonies destroyed, 78; number of colonies infected with European foul brood, 3.

One of the most enthusiastic beekeepers' meetings recently held in Ohio was that of the Licking County Beekeepers' Association

(Continued on page 500.)

BEES, MEN AND THINGS

(You may find it here)

IT certainly seems strange to me that in the A B C book in the article on bee-hunting that it does not mention lining (or coursing bees, as it is known in Texas) from a pond or pool of water. That is three times easier than with the hunting box. Sometimes I have seen six or seven lines going out from one small pool.''—W. T. Rabb, Travis County, Texas.

''Largest crop of honey for years. Plenty of alsike clover sown last year. Lots of rain keeping the clover blooming a long time and very little cut yet.''—J. M. Ramaley, Westmoreland County, Pa., July 12.

''The bees have done splendidly on fruit bloom and horehound, the latter producing here a honey of far better quality than is described in the A B C & X Y Z book.'' Harold P. Whitehill, Santa Clara County, Calif., July 7.

''The high price of sugar is causing thousands of acres of good bee-range to be planted to sugar cane in this country.''—Frank R. Smythe, Jr., Oriente, Cuba, June 15.

''Bees are doing well and storing well in supers. We are having lots of rain, which is good for the clover. Took off two finished supers yesterday (July 2) which is quite early for us.—J. E. Crane, Madison County, Vt.

''Bees have had a late season, but bee-pasture is fine. The bees are in good condition, but there has been too much wet weather for them to get much honey. The clover crop will be very short in this locality.''—Cass Schoonover, Scioto County, O.

''My average comb honey has been about 100 pounds per colony for 14 years. I use 10-frame Langstroth hives and Danzenbaker sections and use old-fashioned chaff hives. I haven't had a swarm of bees leave any of my hives, to my knowledge, in 12 years. I find it no hard job to keep bees from swarming. The old advices from old beekeepers, keep all stocks strong at all times, is one of the best plans to follow. Those chaff hives I line up on the inside and bottom with plenty of newspapers and pack between with dry planer shavings. The entrances are the same I used 30 years ago, ⅜ x 8. Those hives are situated on a sand hill three miles from the south shore of Lake Erie, with no windbreak of any kind. I can't call to memory when I have lost a colony in wintering. I have no increase and no losses.''—Thomas Clark, Ashtabula County, O.

''The Midlothian Beekeepers' Association (of England) is credited with possessing a most detailed bee model, measuring 5 ft. long. It is capable of analysis for the purpose of anatomical and physiological study of bees and will show full details even of the vascular and nervous systems. From an educational point of view such a model is invaluable. It is the work of a French artist and has cost £200. The Association is to be congratulated on having such a valuable specimen of applied science and art.''—The Bee World.

''Aluminum is a good conductor of heat and cold, and wax is a very poor conductor. I can imagine the heat leaking to the ends of the aluminum combs on the cool spring days and the weak colonies dwindling away because their owner 'knows better than they do what is good for them.' Altho I am not from 'Missouri' the friends of aluminum combs will have to 'show me.' That is, they will have to let the bees show me.''—Oscar Ritland, Juneau County, Wis.

''White clover has not yielded much nectar for two years, but it looks good this spring. So we hope for something better. The farmers are beginning to sow sweet clover for pasture. That will help some. Other sources of honey are from goldenrod, fall flowers, and buckwheat. There is only a small number of colonies in this county, but more people would keep them if they could get them. The sugar shortage is making some people sit up and take notice of the beeman who gets the honey.''—Alza D. Brown, Pipestone, Minn.

''Here's a record: A friend of mine, and not in the best of health, started in 1919 with 40 colonies in 8-frame hives; increased to 75. These 75 averaged 325 pounds of extracted honey; the two best produced 450 pounds each. The entire crop was sold for 20c per pound, and now he has sold the 75 colonies and equipment for $20.00 per colony, and this within 100 miles of Portland; and the trouble is, it is like the gold fever—everybody imagines they can do as well, when the truth is more failures should be recorded than these unusual successes.''—E. J. Ladd, Portland, Ore.

''What is the cause of foul brood? What is the propagating medium? Why is it more virulent at one time than another? All questions which, if we knew more, we could answer offhand. After all, what do we know about it? Precious little.''—G. Thomas, Cambridgeshire, England.

''I do not have much trouble getting my bees to empty unfinished sections if the sections are given to the bees before the weather gets too cold. I take an empty super and remove the separators and line it with a piece of newspaper. I then break the cappings and scrape the unsealed cells down and fill the supers. The paper holds the honey that may leak from the injured sections. Place the super on the hive and with the hive-tool punch a few holes in the paper and. the bees will do the rest. They will empty every injured cell and repair it again, provided they have room enough below to store.’’—A. N. Norton, San Juan County, N. M.

‘‘White clover does not seem to be yielding honey very freely, altho there is an abundance of bloom. A plant that is rapidly spreading about this locality is Devil’s weed. This seems to be visited by bees; but it has a deep cut that seems to me too deep for the bees to get access to the nectar.’’—F. R. Davis, Dutchess County, N. Y.

‘‘Nine hundred and thirty-three members were enrolled in the correspondence course in bee culture conducted by the Entomology Department of the Oklahoma A. & M. College in 1918. This course was the first of the kind ever held in the State and was the means of arousing much interest in bees and honey production. In the class there were 612 men, 175 women, 11 boys, and 28 girls. The correspondence course consisted of 16 weekly lessons and 4 examinations were held. Instructions were given especially adapted to Oklahoma conditions.’’—W. J. Green, Stillwater, Okla.

‘‘White clover and alsike are in profusion and yielding well, but for lack of bees the crop will be short. The loss in this State was at least 50 per cent.’’—H. H. Flick, Adams County, Pa., June 22.

‘‘The last two seasons have been the poorest that I have ever known of; but the present one has proved to be fine so far and promises to be a record-breaker. But the crop as a whole will not be a large one, for the number of colonies has been greatly reduced. Still everybody who owns bees is making large increase, and many beginners have come into the field. You never saw such great enthusiasm.’’—J. B. Marshall, Avoyelles Parish, La., June 20.

‘‘According to reports in this particular locality, 65 per cent of the bees died this spring, and most of them died in the months of March and April. Practically all the bees that were in double-walled hives wintered in good shape and came out strong.’’—R. E. Wiseman, Mineral County, W. Va., June 25.

‘‘Gleanings in Bee Culture has described a new method of wiring frames which the Americans have named ‘The Thousand Dollar Trick,’ and I think it is most appropriately named. This has opened up a wide field of investigation here in South Africa. For it has been a long-standing source of complaint that our bees stored too much honey in the brood-chamber. Here in our warm climate, where frames are so carelessly wired and we depend on all kinds of foundation, the foundation must stretch a good deal, the cells become enlarged, and the queen refuses to lay in them, as they are not the natural size and the bees use them for honey storing. Let us give this method a fair trial and see if it does not overcome the bad habit of our bees, for which we have been blaming them during the past decade, and, if it does, we will not only save thousands of pounds of money, but will be able to name it ‘The Thousand Pound Trick.’ ’’—Sunday Times Farmers’ Supplement, Johannesburg So. Africa, March 28.

‘‘I bought six second-hand worm-eaten hives. Aren’t they better for firewood than for hives? I think so. The beekeeper from whom I got my bees expected to have at least 17 swarms for me last spring. I had engaged all of them and, not having enough hives, I looked up another customer to take what I could not, but there was only one swarm the entire season, and I do not know how many were destroyed by moths. This beekeeper, however, sees only ‘bad luck’—no cause and effect. His hives are all ‘gums.’ ’’—M. S. Oliphant, Sussex County, Del.

‘‘This has always been a great locality for alsike and white clover, and the last two years the farmers have started growing sweet clover. Where much of the land is light and gravelly they have gone in for it quite extensively and some have made small fortunes growing seed. The yield is usually from eight to sixteen bushels per acre, and they were getting $20.00 or $25.00 per bushel this spring.’’—J. C. Duff, Tara, Ontario, April 6.

‘‘We bottle up royal jelly and keep it for quite a while. Then when ready to use, we mix a small amount of water and shake the whole contents. I use a common medicine dropper to take it out of the bottle and place it in the queen-cells. One dropper full is sufficient for many queen-cells. I find this way saves much time, when our time counts so much in queen-rearing.’’—D. W. Switzer, Saluda, S. C.

‘‘There is a little apiary at Lockport, just a back-yard affair, covering a space of about 15 square feet, with six beehives, which are modern in every respect, with an up-to-date bee enthusiast as its owner. This woman has received this past season 65 gallons, together with 300 pound-sections of honey, realizing over $33.00 per colony. Almost anyone can do the same thing if the bees are given the proper care and attention.’’—Press Bulletin, Baton Rouge, La.

‘‘I have kept bees here for 20 years, and I never before saw such a late, cold spring as this last one. I think there are other regions far ahead of this for beekeeping—no colonies here with three or four supers on that I have ever seen. The farmers cut their alfalfa before it blooms, so that all the honey source we have is white clover and wild flowers, yet some years the bees store a surplus, but I can’t see where they get it. No winter protection is given at all, hereabout. Foul brood here is bad, too.’’—E. S. Thorington, College Place, Wash.

OUR HOMES

A. I. ROOT

Search me, O God, and know my heart: try me, and know my thoughts, and see if there be any wicked way in me, and lead me in the way everlasting.—Psalm 139:23, 24.

I know that my Redeemer liveth.—Job 19:25.

Simon Peter answered him, Lord, to whom shall we go? thou hast the words of eternal life.—John 6:68.

He brought me up also out of a horrible pit, out of the miry clay, and set my feet upon a rock.—Psalm 40:2.

I HAVE told you again and again of the constant stream of "kind words" that have been coming for years in regard to these Home papers. I have told you about getting up in a union meeting long ago and announcing my determination to let the Lord's work come first and A. I. Root's second. Shortly after that public decision I started these Home papers in the bee journal, little at that time, almost fifty years ago. It was very unusual, at that time, to see religious talks in a class journal devoted to agriculture or livestock. Just recently that book, "In His Steps," by Sheldon (which had such a tremendous sale some years ago, and which has been so much talked about), commenced having a big sale, once more. I am glad of it. At the time I am speaking of, altho I had not then read that book, I decided to conduct what business I might have in this busy world, as near as I could, the way Jesus would do it were he engaged in business. No doubt I started out awkwardly, as a baby does when it is just learning to walk; and even some of my good friends, professing Christians, thought I was making a mistake in starting such a department in a journal devoted to *bee culture*. I prayed that God's Holy Spirit might direct my poor efforts, and I had faith to believe that he would so direct. Almost as soon as the journal came out with my poor attempt to *tell* how *I* had been lifted "out of the miry clay" and my feet placed on the solid Rock, a letter came with a vigorous protest. The writer said that if I proposed to "cram my religion down the throats of my readers" in that fashion he wanted his journal stopped. Well, I do not think my faith wavered very much; but in order to see how many felt as this man did I published his letter. As soon as the journal containing the protest was fairly out there came another letter, and this second letter read something like this:

"Brother Root, when I saw you had lost a subscriber I told my wife that I was going to get you another in the place of the one lost, and that, too, before I went to bed; and I had better luck than I expected. Here is the money for *two* new subscribers."

Other letters of a like tenor followed, and the same thing is going on now and has been going on for over 40 years. When the good people of our land—yes, and, I am glad to say, of other lands too—found out I was working first for the Lord Jesus Christ, and not for self, kind, loyal friends sprang up everywhere, and Gleanings went, as you know, all over the world. I think I stated that some extra pages would be given for the Home papers so that our readers could remember that the Home papers cost nothing. And by the way, dear friends, all along these years I have enjoyed work for which I received no pay, in dollars and cents, more than anything else. In furnishing seeds for the new sweet clover I do it without any pay; and every little while somebody sends money for some seeds; but my special clerk who sends out the seeds is instructed to credit all such money on subscriptions to Gleanings or return it. *The A. I. Root Co.* sell goods; but A. I. Root himself has nothing to sell. We are just now getting our new seeds of the new annual clover from our little plantation down in Florida, and we shall have more coming on here in Ohio, when the Florida seeds are gone; but they are all to be given away and are not for sale.

Let us now go back to the Home papers. Other friends besides the first one mentioned have objected to my "theology" as they call it. Just recently a writer who sent for seed suggested that if I were better posted I would be thanking "evolution" for this new clover seed instead of thanking God. I think he suggested that God had nothing to do with it—it all came thru evolution. And then he went on to say that if I knew anything about the doctrine of evolution I would recognize I was behind the times in giving the old discarded account of creation as given in Genesis.

When I suggested that if *he* were up to date he would find that evolution is not considered inconsistent with Genesis, he demanded my proof.

Well, one of my grandsons has just returned from college in Oberlin, Ohio, and he is pretty well in touch with the Oberlin professors, including President King; and when I asked him if Oberlin rejected evolution as not in harmony with Bible teachings, he answered with a most emphatic "No." Well, my evolution friend finally sent me a book to read. Now, it is very seldom that I read a book nowadays. I have not time with all my reading that I feel I *must* at least give some attention to. I commenced to run over the book hastily, and in some way it reminded me of things I had read long ago. I turned over to the preface and found the date, 1882. Just think of sending me a book to keep me posted up to date that was printed 38 years ago! Well, so far as I can learn, and I think I keep pretty well abreast of what is going on in the world, especially the world of science, such books as the one I have mentioned are out of date and gone by. The whole world is recognizing just now, as it never did before since creation, that all great reforms, especially benevolent reforms, have their source in the teachings of our Lord and Savior Jesus Christ. Besides the brother who took me to task because I was not up to date, there were two others whom I have known for years who kept writing me because of my foolish faith in God's holy word. One of them said to me a while ago, "Mr. Root, how can you prove there is a God?" After studying over it for some time—yes, and I think praying over it—I gave him the following brief answer:

"I know that my Redeemer liveth." I think the word *know* I put emphatic. Let me now call attention to a fact that I have sometimes thought rather queer. When your faith in the Scriptures or in anything else that is good is challenged, the very best answer you can give is a quotation from the Bible. The whole wide world, believers and unbelievers, recognize the force and power of Scripture texts or quotations.

Some of you may be inclined to ask right here, "Mr. Root, you say you *know* that your Redeemer lives. Will you explain a little more fully?" Yes, gladly. Never shall I forget the time when I was in the miry clay of unbelief — when Satan's clutches were so firmly fixed on my soul and body that I had almost given up in despair. If anybody was ever in the "miry clay," *I* was that one. In fact, I sometimes almost felt that only death could end it all. You did not know me then, or at least only a few of you. In desperation I used something like my little prayer, "Lord, help." Instead of saying, "Lord, help," as in the years past, however, it was more like this: "Oh, God, if there be a God, have mercy on a poor miserable soul." That prayer was answered—instantly answered. A gleam of hope came into my poor tortured soul. In Pilgrim's Progress we are told how the burden dropped all at once from the shoulders of Christian. A new life opened up; and the only thing in the whole wide world that could give me information and full particulars in regard to the new life was God's holy word. I turned over to the New Testament and began to read, and for the first time in long years I *understood* what I read; and, dear friends, I have been rejoicing and thanking God from that time to this for that wonderful deliverance out of the "miry clay," and for the still more wonderful planting of my feet on the solid Rock. Once during the delirium of a fever some fiend suggested that I had been swearing. I protested, and declared that not once since my surrender in years gone by had I taken God's holy name in vain. Other voices joined with my accuser, or at least in my delirium I imagined they did, and backed him up by saying, "Yes, we *all* heard you." Again I protested—yes, protested in agony—and finally, in spite of the delirium, I thought of my "emergency prayer," "Lord, help;" and, as it almost always happens, the answer came quick, something like this: "No, no, dear child; never once, not for a single minute since you shouldered your cross to follow me, have you gone back by word or thought. Lie still in peace. Go to sleep." At his words the emissaries of Satan hastily retreated, and I slept and came back to life.*

By the way, these unbelievers who have been following me and reading Gleanings for years have given as a reason for doing so that they were impressed by my sincerity. Whether I was right or wrong they gave me the credit of being honest. After some long letters back and forth between one of these friends and me, I told him it was useless for us to spend time in arguing. "Now," said I, "instead of trying to answer you myself I am going to pray that *God's Holy Spirit* may answer you. I wish, however, first, that you would tell me

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*From that time to this nearly fifty years ago, I have never for *one minute* meditated going back to that old life of unbelief. Do you wonder that I can honestly say, "I *know* that my Redeemer liveth?"

that you are ready to receive instruction from this same Holy Spirit from your Creator. You seem to be anxious to get at the truth of things. Now, will you welcome and receive the evidence from the Spirit of your Creator when it comes to you?"

He gave me no direct answer to this; but I have good reason to believe that he is getting on better ground. There is one thing that I have hesitated somewhat about before broaching this matter. When I have become intimately acquainted with those who reject the Scriptures, and those who reject the idea of a "God of love," I have almost invariably found there was a reason for it. When a physician is called to dress a sore finger, or something of the sort, the first question is, "Is it not a sliver or a piece of rusty nail? If so, nothing can be done until this foreign matter is removed." It may be a painful operation; perhaps a surgeon will have to be called in; but before any real recovery comes about, the foreign matter must be removed. Well, in almost every case where there is a rejection of the Scriptures there is something out of sight that will have to be removed. "If I regard iniquity in my heart the Lord will not hear me."[*]

Now in regard to the words of our opening text: You will notice it is quite parallel, or at least along parallel lines, with my favorite text that I have quoted so much—"Let the words of my mouth and the meditation of my heart be acceptable in thy sight, O Lord, my strength and my Redeemer." Well, in this text at the close of the 139th Psalm David goes further. He says, "Search me, O God, and know my heart; try me and know my thoughts." My friends, what do you suppose would happen if all mankind would make this prayer its prayer? While I write on this 7th day of July there is great excitement all over our land as to who shall be our next president. What would happen if the candidates for the presidency would make that prayer their prayer? and what would happen if our politicians or business men would use the last part of that text and really desire to see if there was any wicked way in their thoughts, and ask God to lead them in the way everlasting? There is much talk about profiteering, and a lot of it is being brought to light. Could any man or woman be accused of profiteering if such persons made that prayer their prayer?

A good divine, who has now gone to his rest, once said it is an excellent thing to pray for the influences of the Holy Spirit; but he added, "Dear friends, if you persevere in it, it may make you decidedly uncomfortable." At first I was a good deal surprised at this, but of late I think I understand it. I have been praying that the Holy Spirit might search *me;* and as a result I have been able to see, as I never saw before, the wickedness and selfishness of my own heart. You know I am given to enthusiasm; and all my life the temptation has been to exaggerate just a little. I do not know, but I have had a sort of idea that people would not listen unless I stated things strongly. I am trying hard to stick to the exact truth in all of my statements better than I ever did before, and I am happy in doing it. There may be in God's holy word things that I do not understand or comprehend, but the beautiful texts I have quoted in this Home paper are enough alone to place the Bible above any other book that the world contains. Poor Peter, when the Master asked him if he too would turn aside, replied, "Lord, to whom shall we go. Thou hast the words of eternal life."

OVER 1000 BUSHELS OF POTATOES IN ONE SEASON FROM ONE ACRE.

My good friends, if you want to understand what follows, turn back to page 325 of the June issue of Gleanings. Below we give you the particulars promised in regard to the wonderful crop of potatoes:

Dear Mr. Root:—The large crop of potatoes was grown by J. Rhodes of Dryden, Ontario, not by myself. They were grown by Mr. Rhodes from Green Mountain seed. He has selected the best potatoes every year from roots that bore not less than 14 or 15 potatoes. He has done this for several years and has bred a strain of potatoes that I do not believe can be beaten in any part of the world. This is a fine district for the growing of seed potatoes. By careful selection and the help of the climate, we grow them absolutely free from any disease. We have organized a seed-potato-growers' association and I am the salesman for the association; so if anyone happens to want

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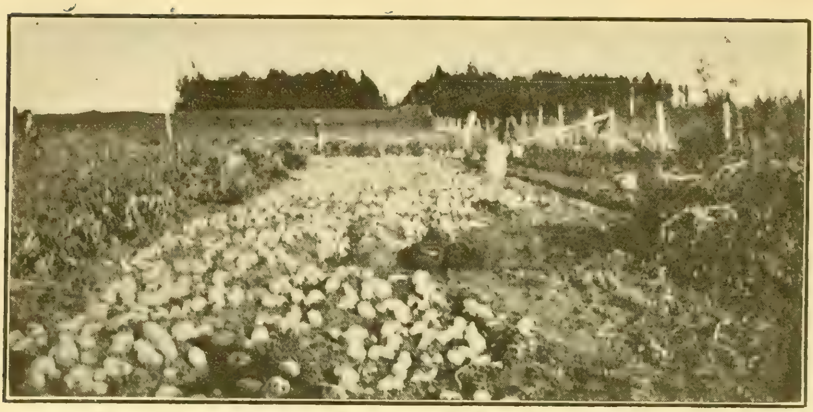
[*] The letter below, just at hand, comes in nicely right here. Please consider particularly the portions I have italicised.

"I am sending you a letter and check of a kind which I suppose you don't very often receive.

"A few years back I sent in a bee-supply order and received one 1½-story hive that I did not order; but just the same I kept it. I hope you will forgive me. Now I have *become a Christian;* so I must pay for the hive. A person does not think it is a very big sin to do a thing like that, and you don't notice it so much until you can see yourself as you really were. I must say it is a great blessing that I can pay for the hive and tell you about it. For some time I have been putting off writing this letter for fear that you would not take it the way I meant. Then also I hesitated about confession, but now I have got to *where I have to confess* before man and God; so it is really working good, and it's *the only life worth living.* Well, I hope this letter will be satisfactory and also bring some light to others, and enable them with God's help to start in this better life. Al. Lindstrom.

"Rt. 2 Foreston, Minn., May 10, 1920."



Just at digging time.

any of these potatoes at any time, he will have to write to me. All you say about my being a beekeeper, and being a successful one, is quite true. I started six years ago with two colonies of bees, and I have today 133 colonies and a complete equipment with which to handle them. When I started I did not know anything about bees. I have had to learn from books (your books), and as there was no other beekeeper near here I had no one of whom to ask any questions. But I have done well, and have a lot to thank *you* for. I just love the bees, and, if I am spared to be a hundred years old, I will still be a beekeeper. I am enclosing you two prints of that fine crop of potatoes as they lay in the field. I sent the potatoes to you because I had read so much about your Florida home and the potatoes you had grown there, and how you took them to the store in your electric automobile, which is driven by wind power, I knew you would be interested in them. I sent some of these potatoes to Luther Burbank, Santa Rosa, Calif. He has written me two letters about them, saying they are certainly fine potatoes. The actual yield of this plot was 1020 bushels to the acre. CHARLES NORGATE.

Dryden, Ontario, Can., June 3, 1920.

In addition to the above we give part of a letter received last February. It gives some explanation in regard to that locality, not only for potatoes but for clover and bees as well. In fact, at the head of his stationery he has in print, "From the Famous Clover Fields of Dryden."

A. I. Root, Esq.,
Bradentown, Fla.

Dear Sir:—This district is, so far as I know, the only one that is known to produce potatoes free from disease. We grow potatoes here and ship them both east and west for seed, and the people who buy them say that they can get none so good anywhere else. We have a very cold climate in winter but very hot in summer, and a short but very fast growing season. The potatoes grown here are so hardy that when they are taken to a warmer climate they mature early and are much better than seed grown farther south. This district is cut off from any other, being a piece of land sixty miles long and 10 to 20 miles wide, with about 150 miles of rock east of us towards Fort William and 150 miles of rock west of us and 60 miles of rock south and all rock north of us to Hudson Bay. We are 1200 feet above sea level, so you see we are in a district all by itself. I think this is one of the reasons why we can grow potatoes free from disease. We have never seen any potato bugs here, which is a wonder. We grow some of the finest clover seed in the world here. This is where the famous Northern clover seed is grown. The clover never freezes out here; the seed from the first crop of blossoms is always saved. I would like to tell you how much I have to thank the Roots for. It is with your help that I have got thru Gleanings and your A B C book, that have helped me along in this world. Seven years ago I happened to get hold of your A B C of Bee Culture and read it, and got a bad dose of the bee fever. I bought two colonies of bees that spring and subscribed for Gleanings and today I have 120 colonies and all

"Seeing is believing."

the necessary equipment Last season I took nearly four tons of honey. I have every prospect of doing well thanks to the good work the Roots do in their books. So you see I have a lot to thank you for. Your influence is felt in a great many homes in this country, far more than you suspect.

Yours very truly,

Dryden, Ont., Feb. 12, 1920. C. NORGATE.

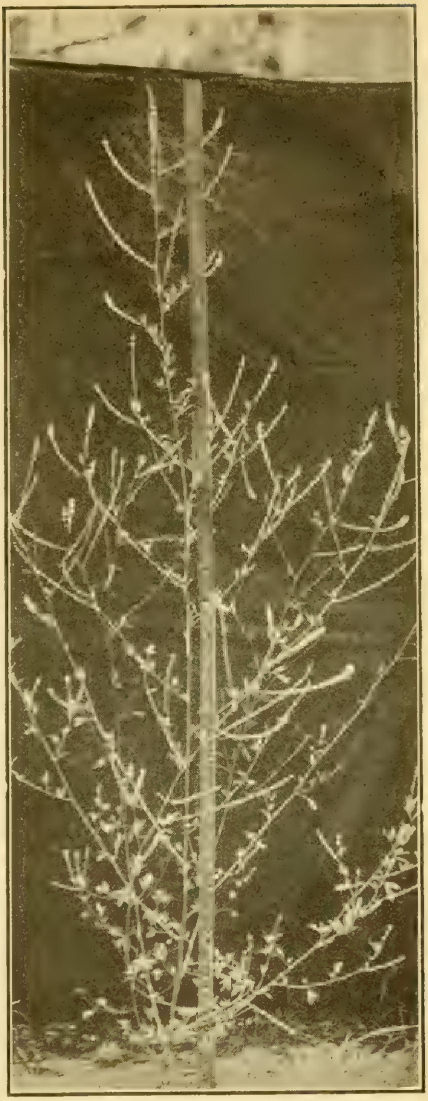
Perhaps I might remark that these same potatoes are being tested in my garden here in Medina. Friend Norgate was so kind as to send me a bushel of the potatoes by express. They were planted May 19th. I cut the whole bushel of large or very large potatoes to a single eye, and there is scarcely a missing hill in the whole plot—perhaps an eighth or a tenth of an acre. I believe it is about the handsomest plot of potatoes I ever saw. At present writing, July 13, they are just coming into bloom, and there is occasionally a potato the size of a hen's egg. So far these, like the same potatoes I grew in Florida, seem to have wonderful vigor, and there is no trace as yet of any blight, fungus, nor any thing of that sort. I may give a picture of the plot later. It seems to be a well-recognized fact just now that potato seed from the extreme North is better, not only for Florida, but for most of the other southern States. In fact, the greater part of the potatoes planted in Florida come from the State of Maine. So far, I believe the general verdict is that (in spite of the expense of the long hauls) shipping seed potatoes from the North, not only pays well, but pays big.

THE NEW ANNUAL SWEET CLOVER.

Our readers will, no doubt, be greatly interested in the following from our good friend Professor Hughes, who has the credit of giving not only to the beekeeping world, but to the agricultural world at large, this new wonderful legume:

Mr. A. I. Root:

You will be interested in knowing that we sent out something over 45,000 small samples of seed of the annual white sweet clover this spring, and that we had hundreds and thousands of requests for larger quantities of this seed at almost any price which we might ask. We, of course, had no seed for sale. When we made announcement regarding this clover we stated that it did not originate here, but that a few plants were discovered in one of some 500 different seedings of the common biennial white sweet clover. We stated that it was our opinion that the original mutant from which this clover has apparently all come occurred somewhere on wild land in the South and probably somewhere in the State of Alabama.



Six feet high in only 100 days from the seed.

I am leaving Ames this afternoon to go to Alabama to investigate the extent of the acreage of this annual white sweet clover growing on waste lands there. I have been in touch with two different men in one community and have had samples of plants sent me which definitely establish the fact that it is growing wild there. How extensive the acreage may be I do not know. It may be that there is a considerable acreage of it. The two men who have written me are apparently the only men there who appreciate the fact that they have the annual white sweet clover, as well as the common biennial clover.

Because of the very general interest and great demand for seed of this annual white sweet clover an effort should be made to save every pound of seed which we possibly can. It occurs to me that the best way to do this would be to put a few reputable seedsmen in touch with the situation. I have picked out ten seed companies in different parts of the country to whom I am writing this letter, with the hope that they may be able to send a man down there and get as much of this seed harvested as possible, being sure to keep it pure. You will readily appreciate the fact that there are many seedsmen who might take advantage of a situation like this. I believe that the only practical way for you to get this seed is to send a man down there.

Seed will be ready to harvest from July 10 to 15 or shortly thereafter.

The only thing which we will ask of the seedsmen whom we are putting in touch with this seed will be that they use great care to insure reasonably pure seed of the annual, and that they supply us with the names of the men to whom they may sell seed next season.

I shall make Uniontown, Alabama, my headquarters, and suggest that you write me there immediately, if interested.

Very truly yours,
H. D. Hughes.
Farm Crops Department.
Ames, Iowa, July 2, 1920.

In regard to the picture we present, here is something from our good neighbor, whose place is right across the street from my Florida home:

Dear Mr. Root:

I have just been over to look at your clover. The two tallest plants are about 6 feet high. They seem to have very few leaves on, and it seems to me that if it is to be used for hay that it will have to be cut before the seeds mature. The leaves are very small, and so the foliage was very little compared with the size of the plant.

The seeds are just beginning to ripen, and I am enclosing a few in the small envelope enclosed in this letter. I am not sure that the cultivation about these plants has been sufficient to get the best growth, and so I am going to take a few seeds and plant them in my strawberry bed, which I am giving very careful culture, and try to find out what they will do here in the rainy season. I expect that a good many of these seeds are too young and may not germinate. In a week or less there will be a good many, as the plant seems to produce very many seeds, and I find that it is not a difficult matter at all to gather them. If you desire to save all the seeds and will let me know I will see if I can arrange it for you. The lowest limbs of the plants, being the oldest, ripen their seeds first.

We are having fine weather and everything is growing finely. I planted a sack of Irish potatoes later than I would have been willing to if the price had not been so high and they are turning out finely. I am getting four dollars a bushel at the store and I take down four bushels about every three days.

Our Sunday School is holding up finely.

E. B. Rood.
Bradentown, Fla., June 27, 1920.

Below is another letter, from the editor of the Rural New-Yorker:

Dear Mr. Root:

My own patch is up and is growing at a great rate. I have never seen anything grow with such speed. I am convinced that in this clover we are to have a manurial plant that will be of wonderful benefit on our eastern farms. I was amused the other day to have a letter from a Florida man who claims to have discovered the old-fashioned Two-Year sweet clover becoming an annual in Florida. That's a new one to me, but things are happening at such a rate that it would be a very wise man who would claims positively that anything is impossible.

Yours truly,
H. W. Collingwood,
Editor.
333 W. 30th St., New York, July 6, 1920.

And here is still another, from the Henry Field Seed Co.:

Friend Root:

I have examined our plants and find down in the upper whorl of leaves the blossoms showing up, so we can expect to have blossoms before a great while, I am sure. And probably in another month we will begin to gather seed.

I am glad to have the photograph of your plant, taken in Florida. Eighty-seven days is quite rapid, it seems to me, but probably every one of those days has been a growing one, while with us the conditions are not always so favorable, in fact, seldom so.

Henry Field Seed Co.,
By Henry Field, Pres.
Shenandoah, Iowa, June 23, 1920.

The latter will probably have seed for *sale* before anybody else that I know of. Possibly Professor Hughes in his trip may be able to arrange plans for securing seed.

"DO GOOD AND LEND, HOPING FOR NOTHING AGAIN."

Dear Mr. Root:

It is to be hoped that the farmers of this country appreciate the manner in which this discovery has been handled. It is seldom that so valuable a find is given free and whole-heartedly to the world. I believe that both Professor Hughes and yourself are to be commended for giving up your time and attention to the distribution of this new plant, which, according to the accounts, will mean a valuable addition to crops.

Fred T. Blyth.
2182 E. 95th St., Cleveland, O.

KIND WORDS FROM A SOUTH AMERICAN MISSIONARY.

Dear Mr. Root:—I feel I should say "brother in Jesus Christ," for your articles in the "Our Homes" Section in Gleanings in Bee Culture reveal that such indeed you are. I am sure you will be interested in hearing from one who has been 24 years a missionary to the Indians of South Central Chili, about the same distance south of the equator as you are north.

First of all, thanks for your testimony to our Lord and His grace in "Gleanings," and may your gleanings be abundant at "Harvest Home" time. Such a testimony has more influence and power than that of even a minister, it being free from an accusation of being "professional." May it grow exceedingly. I especially liked that in the June number, its personal and home appeal.

After the conversion of a number of the Araucanian chiefs, the translation of a goodly portion of the Bible in their language, the education of some thousands of their young men and women in schools founded under my direction, for them as well as for the sons and daughters of the English-speaking residents here, I have retired, as the Missionary Society thought my plans too large for them, and am now, with my family, staying "on the job." Evangelistic, pastoral, educational (literary, industrial, and agricultural), medical, social, and other organized branches have been left to give away to personal and home testimony, whilst I am supporting myself by bees, fruit, poultry, etc., at the same time. Our two boys, we trust (my wife and I), will stay here and give their lives to the work to which we have devoted our own.

I have just been writing to the office and thought I would enclose this to you. Also to ask you if you have a little of that "new white sweet clover seed," which you would like to see sown in South America, and passed on to the Araucanians, to do me the great favor of letting me have a little. It is really needed here I can assure you. Our Indians will appreciate it. They are glad to get hold of anything new. Yesterday I sold 50 two-year old apple trees to one young fellow educated in the Mission schools (the agricultural and industrial one). Some years ago I sold 100 to another old scholar. Progressive Indians, are they not?

That makes me think of the great curse intoxicating liquor has been to them. Thank God, our boys, as a rule, give it the go-by. Public opinion amongst the Spanish-speaking people in Chili (and in all South America) needs much educating before they will follow the wonderful world-example the United States is giving. Your words as to it and as to cigaret-smoking (general amongst the Spanish-speaking youth, even if only mere boys) are a noble witness.

(Rev.) Charles A. Sadlier.
Casilla 75, Temuco, Chili, 19th July, 1919.

Classified Advertisements

Notices will be inserted in these classified columns for 30c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued while they are in good standing.)

S. B. Post, H. G. Quirin, Curd Walker, Unitile Co., E. D. Townsend & Sons, Sarasota Bee Co., Pleasant Hill Caviery, M. F. Perry, Herman McConnell, Evan Jones, Foster Honey & Merc. Co., L. W. Crovatt, R. O. Cox, E. C. Bird & A. C. Stanley, D. P. Barrett, J. Ivan Banks.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey; in 60-lb. cans, at 22½c per lb., f. o. b. Brooksville. Sample 25c.
W. B. Wallin, Brooksville, Ky.

FOR SALE.—We have a very choice lot of white clover honey at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—We have a small part of our crop of white clover-basswood extracted honey left, packed in new 60-lb. cans, two to the case. Write for prices. D. R. Townsend, Northstar, Mich.

FOR SALE.—New crop White Haitian Honey. 30-gallon barrels, 19c per lb.; 60-lb. tins, 20c per lb. California Orange Blossom Honey, 60-lb. tins, 23c, f. o. b. New York.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Finest Michigan raspberry, basswood and clover No. 2 white comb, $5.50 per case; No. 1, $6.00; fancy, $6.50; extra fancy, $7.00; 24 Danz. sections to case. Extracted, 60-lb. cans, 25c per lb. W. A. Latshaw Co., Clarion, Mich.

FOR SALE.—About 40,000 lbs. extra-fancy white-clover honey. Price f. o. b. Kalona, case, 2 60-lb. cans, 22c a lb.; case, 1 60-lb. can, 23c a lb. Sample bottle by mail, 20c.
J. M. Gingerich, Kalona, Iowa.

RASPBERRY HONEY for sale, left on the hive until thoroly ripened by the bees. It is thick, rich, and delicious. In new 60-lb. cans. Price, two cans in one case, $30.00. One can, $15.50. Sample, 25c.
Elmer Hutchinson & Son, Lake City, Mich.

HONEY AND WAX WANTED

Want Southern extracted honey, preferably carload. Must be fancy. A. J. Heard, Kirkwood, Ga.

Want fancy extracted or comb honey for cash.
C. E. Woodhull, 320 Calvert Ave., Detroit, Mich.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—Bulk comb, section, and extracted honey. Write us what you have and your price.
J. E. Harris, Morristown, Tenn.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address, so we can identify it immediately upon arrival, and make prompt remittance.
The A. I. Root Co., Medina, Ohio.

FOR SALE

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

Good second-hand honey cans, 35c per case; 170-pound kegs at 25c each. How many?
J. E. Crane & Son, Middlebury, Vt.

FOR SALE.—100 second-hand cases, each containing two 5-gallon cans.
S. T. Fish & Co., 163 W. So. Water St., Chicago, Ill.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition at 50c per case.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

How many queens have you lost introducing? Try "The Safe Way," push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

FOR SALE.—Ten-frame standard dovetailed hives in lots of from one to fifty. Very cheap. Write for prices. Wm. Craig, Aitkin, Minn.

ROOT'S BEE SUPPLIES.—For the Central Southwest Beekeeper. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

FOR SALE.—27 shallow supers with frames, 10 frame size. Price, $25.00.
O. Peterson, St. C, 14 Steele St., Worcester, Mass.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Four-frame extractor, reversible, 40-gal. tank and pump, 1½ H. P. engine. Brand new, $150 cash.
I. V. Beaupre, 1826 Bell Ave., Flint, Mich.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You can save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—2 H. P. boiler and engine; boiler, $25.00; engine, $15.00; both, $40.00.
J. W. Utter, Amity, N. Y.

FOR SALE.—6000 B grade Root sections 4¼ x 4¼ x 1½ in original packages, at $10.00 per 1000; also ten 8-frame Root chaff hives in good condition, $30.00. Dellon D. Smith, Wyoming, N. Y.

FOR SALE. — One 8-frame Root's automatic power honey-extractor; one honey pump, one gasoline engine. I will sell all together, or any one separately. Write for price.
Elmer Hutchinson, Lake City, Mich.

FOR SALE.—Root's 8-frame power extractor (12-in. pockets), Peterson capping melter, separating can, and Root's steam-heated uncapping knife with copper boiler. Have never been used.
A. J. Schultz, Ripon, Wisc.

FOR SALE. — Good second-hand double-deck comb-honey shipping cases for 4¼ x 4¼ x 1⅞ sections, 25c per case, f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash, and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

WANTS AND EXCHANGE

WANTED.—Medium-size extractor; must be in perfect condition.
R. F. Evershed, Irondequoit, N. Y.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens, $1.00 each.
W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—1920 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

When it's GOLDEN it's Phelp's. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Simmon's Strain, golden and three-banded queens; 1, $2.00; 6, $10.00. Also nuclei.
Allen R. Simmons, Claverack, N. Y.

NOTICE.—No more queens or bees for sale this season. Robt. B. Spicer, Wharton, N. J.

FOR SALE.—Untested Golden Italian queens, $1.25. Tested queens, $2.50.
J. F. Michael, Winchester, Ind.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Italian queens, three-banded and Goldens, untested, $1.25 each; 6, $6.50; 12, $13.00. Now ready. G. H. Merrill, Pickens, S. C.

Queens of Dr .Miller's strain, untested, $1.50 each; $15.00 per doz. Tested, $2.00 each; $22.00 per dozen. Safe arrival and satisfaction guaranteed. Geo. A. Hummer & Sons, Prairie Point, Miss.

FOR SALE.—Pure Italian queens, packages and nuclei. One untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100.00.
Golden Star Apiaries, San Jose, Calif.

FOR SALE.—My famous three-band Italian queens, one for $1.25; six for $7.00. From June 1 to November.
J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

FOR SALE.—Leather-colored Italian queens from Dr. Miller's breeder. Virgins, $1.00; tested, $1.50. July 1, 5, $6.00; 10, $11.00.
F. R. Davis, Stanfordville, Dutchess Co., N. Y.

FOR SALE.—Best three-banded Italian queens ready June 10. Untested only, one, $1.50; 6, $8.00; 12, $15.00. Particulars on request.
Ross B. Scott, Lagrange, R. D. No. 4, Ind.

FOR SALE.—QUEENS. Italian queens of excellent stock will be ready to mail June 1. Untested, $1.50 each; 6, $7.50; 12, $14.00.
J. D. Harrah, R. D. No. 1, Freewater, Oregon.

FOR SALE.—Leather-colored Italian queens, tested, until June 1, $2.50; after $2.00. Untested, $1.25; 12, $13.00. Root's goods at Root's prices.
A. W. Yates, 15 Chapman St., Hartford, Conn.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Golden queens. Orders filled in rotation. Untested, $1.10; select untested, $1.50 each. Safe arrival.
Hazel V. Bonkemeyer, Randleman, R. D. 2, N. C.

BEES BY THE POUND. — Also QUEENS Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

FOR SALE. — Hardy Northern-bred Italian queens, untested, $2.00 each; 6, $11.00; select tested, limited number, $3.00 each after June 1.
Dr. C. E. Sheldon, Coeur d'Alene, Idaho.

QUEENS OF QUALITY.—Our Hand-Moore strain of three-banded Italians are beautiful, and good honey-gatherers. Bred strictly for business. Untested, $1.50; half-doz., $8.00. Select, $2.00.
W. A. Latshaw Co., Clarion, Mich.

FOR SALE.—Golden Italian queens, untested, $1.15; 6 for $6.50; 12 or more, $1.00 each; tested $2.00 each; select tested, $3.00 each; extra-select tested, $4.00 each. No bees for sale.
D. T. Gaster, Randleman, R. D. 2, N. C.

ITALIAN QUEENS.—Three-banded, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, $1.25 each; 12 or more, $1.00 each. Send for circular
J. H. Haughey, Berrien Springs, Mich.

FOR SALE. 1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.50 for 10; $1.10 each when 25 or more are ordered. Allan Latham, Norwichtown, Conn.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found: May to August, untested, each, $2.00; six, $8.00; doz., $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—Three-band leather-colored Italian queens. Safe arrival guaranteed. No disease. Hustlers, none better. 1, 1.00; 12, $10. Write for circular and prices on quantities.
J. M. Cutts, R. D. No. 1, Montgomery, Ala.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

DAY-OLD QUEENS at practical prices. Superior improved Italian stock. Mailed in safety introducing cages. Safe arrival guaranteed to any part of the U. S. and Canada. Send for circular. Prices, 1, 75c; 10, $6.00; 100, $60.00.
James McKee, Riverside, Calif.

"Those who think must govern those who toil;" for the busy bee man who must keep an efficient force always at his command in the hive there's no helper equal to Victor's Italian queens. Mated, 1.25 each; 6, $7.00; 12, $13.50.
Julius Victor, Martinsville, N. Y.

BOZZALLA LIGURIAN QUEENS.—Import direct from Italy, selected tested Italian queens, $3.50 each. Every queen comes from Enrico Bozzalla's Queen Rearing Apiaries to you direct. No risk. Safe arrival guaranteed. Remit to sole agent.
H. M. Stich, Riccartsbar Ave., Paisley, Scotland.

TESTED QUEENS. — Three-banded leather colored Italians, descended from the celebrated Moore strain. These queens are one year or less old, right in their prime. Price, $2.00 each. Safe arrival and satisfaction guaranteed. A few breeding queens, $5.00 each.
Elmer Hutchinson & Son, Lake City, Mich.

QUEENS.—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, $2.00; six, $9.00; twelve, $16.80. After June 1, one, $1.50, six, $8.00; twelve, $14.00. Select tested, $3.00 each. Write for prices per 100. Descriptive circular free.
Hardin S. Foster, Dept. G, Columbia, Tenn.

We have enlarged our queen-yard considerably. We can take care of orders better than ever, large or small. April 15 to June 1, untested queens, $1.25; tested, $2.50; untested, $115.00 per 100. After June 1, $1.00 each or $90.00 per 100. J. A. Jones & Son, Montgomery, R. D. No. 1, Box 11a, Ala.

FOR SALE.—By return mail, three-banded leather-colored Italian queens from the very best honey-gathering strain, $1.50 each, or $15.00 per dozen; tested, $2.00 each. You can buy cheaper queens elsewhere, but you can not get better queens anywhere. Delivery and satisfaction guaranteed.
Jasper Knight, Hayneville, Ala.

ITALIAN QUEENS. The Old Reliable three-banded Italians, the best all around bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, $1.50; 6, $8.00; 12, $15.00. Tested, $2.25; 6, $12.00; 12, $22.00. Select tested, 3.00 each. Descriptive circular and price list free.
John G. Miller, 723 C St., Corpus Christi, Texas.

PURE ITALIAN QUEENS.—Not the cheapest, but the best we can grow; bright yellow, with clean bill of health; sure to please; such as we use in our own yards. Untested, $1.25; $14.00 per dozen.
J. B. Notestein, Bradentown, Fla.

Highest grade three-banded Italian queens. Virgins, 75c each; untested, each, $1.25; 6, $6.50; 12, $12.00; 50, $47.50; nuclei, $3.00 per frame, queens extra. No disease, and satisfaction guaranteed. A. E. Crandall, Berlin, Conn.

FOR SALE.—Italian queens. Prices for untested in June, $1.50 each; 6, $8.25; 12, $16.00; tested, $2.50 each. After July 1, untested, $1.25 each, 6, $7.00; 12, 13.50; tested, $2.00 each; virgins, 75c each. Mismated queens replaced if returned in 30 days. Dead queens replaced if returned by return mail. Untested, ready to ship June 1 to June 10. R. B. Grout, Jamaica, Vt.

MISCELLANEOUS

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

HELP WANTED

WANTED.—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

PATENTS **Practice in Patent Office and Court**
Patent Counsel of The A. I. Root Co
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

Mott's Northern-bred Italian Queens

Untested, $1.00 each; $12.00 per dozen. Select untested, $1.25 each; $15.00 per dozen,
Select guaranteed, pure mated, $1.50 each. Select tested, $2.50 each.
Plans "How to Introduce Queens, and Increase." 25c

E. E. Mott, - - Glenwood, Mich.

QUEENS

Golden and three-band Italians, The kind that fill from two to four supers.
Untested, $2.00 each; $11.00 for 6; $45.00 for 25. No discount for 50 or 100 lots. Tested, $3.00 each; $16.00 for 6. Send orders for queens as early as possible.
Full colonies (bees and queen) $12 00 and $15.00 for 8- and 10-frame Root Co. hives.
S. C. R. I. Red eggs for hatching (280 egg trapnested strains) $2.50 per 15. $12.00 per 100.

MISS LULU GOODWIN, Mankato, Box 294, Minn.

ATTENTION

Pacific Northwest Beekeepers

We handle a full line of supplies for beekeepers, including Italian Queens. Write us your requirements and for our catalog B. It's free.

Spokane Seed Company, Spokane, Wash.
904 First Avenue

(Continued from page 488.)

which gathered at Newark on July 17. There was a large attendance and much interest and much enthusiasm were shown. All present reported an unprecedented honey flow and an unusual crop. Editor E. R. Root was among the speakers.

The annual summer meeting and basket picnic of the Livingston-Wyoming County Beekeepers' Association will be held at the apiary of W. E. Spink, Varysburg, N. Y., on Sept. 1. All beekeepers welcome.

The second Wisconsin Beekeepers' Field Meet and Chautauqua will be held August 16 to 21 at Madison. Dr. E. F. Phillips and Geo. S. Demuth will act as chief instructors, while such leaders as C. P. Dadant, N. E. France, E. R. Root, H. F. Wilson and others equally well known will be present. A whole garden has been grown on the University grounds to help feed those who attend. This is indeed a great opportunity for beekeepers of Wisconsin and adjoining States to enjoy a very pleasant and very profitable week.

Advertisements Received too Late to Classify

FOR SALE.—Finest quality white-clover extracted honey, well ripened and of good flavor, put up in new 60-lb. and 12-lb. cans, and 10- and 5-lb. pails. Also some nice comb honey.
R. C. Ortleib, Dolgeville, N. Y.

WESTERN HEADQUARTERS for PURE ITALIAN QUEENS, the old reliable three-banded stock, bred strictly for business. My select untested are LAYING before being caged; less loss introducing. Price after Aug. 1, 1, $1.50; 12 or more, $1.25 each. Tested, $2.00. Breeders, $5.00. Circular free.
J. E. Wing, 155 Schiele Ave., San Jose, Calif.

NOTICE TO OUR PATRONS.—We have just received a small supply of the well-known "Marugg Special" grass blades at very acceptable prices. The stock is limited and the supply for the future from our factory in Germany uncertain.
The Marugg Company, Tracy City, Tenn.

FOR SALE.—100 regular shipping cases for $4\frac{1}{4}$ x $4\frac{1}{4}$ x $1\frac{7}{8}$ sections; 50 shipping cases for 4 x 5 sections, in lots of 50. Priced to sell.
Stiles Bee Supply Co., Stillwater, Okla.

FOR SALE.—Try the push-in-comb queen introducing cage, 50c postpaid. H. J. Dahl, 1272 Michigan Ave., Buffalo, N. Y.

FOR SALE.—30 large storage cans with honey gates, 100 or more standard 60-lb. shipping cans with screw tops, round and square cans from 20 to 60 lbs., all clean and suitable for shipping extracted honey; 100 lbs. unopened cases of foundation; 2 extracting machines, tanks for cappings, a quantity of lumber suitable for use in the business, and many suitable articles too numerous to mention.
J. R. Sturtevant, Theresa, N. Y.

FOR SALE.—200 colonies of bees, 20 acres of land, 2 two-room houses, 2 three-room. Good location, 7 miles to Montgomery, Ala., on gravel road. Bees filling up on sweet clover. Will sell before taking off honey. Good alfalfa land. Write to
W. H. Jones, Montgomery, Ala., R. D. 1.

FOR SALE.

On the following list of goods you can make a saving of from 20 per cent up, if you act promptly:.

Shipping Cages for Pound-Bees, New.

1500 1-lb. Packages, complete, at	40c
470 2-lb. Packages, complete, at	52c
140 3-lb. Packages, complete, at	75c
60 1-lb. Packages, nailed, not screened	30c
500 2-lb. Packages, nailed, not screened	40c

These are the packages recommended by the Texas Beekeepers' Association.

Queen-Rearing Nuclei.

975 Standard 4-frame Nuclei, Hoffman frame, nailed and painted, at	$1.00
140 8-frame Hives, divided in the center, N. P., at	$2.00
45 10-frame Hives, divided in 2 and three parts, at	$2.10

10-Frame Hive Bodies.

110 10-frame Hive Bodies, empty, N. P., at	$0.80
150 10-frame Hive Bodies, with foundation, N., at	$2.20
40 10-frame Hive Bodies, with wired frames, N., at	$1.30
10 frame Covers, N. P.	$0.72
10-frame bottoms, reversible, N.	.60
8-frame Telescope metal Roof Covers, N. P., at	$1.00
10-frame Bottoms, in flat	$0.50
350 10-frame Excluders at $0.55 and	$0.65
Medium Brood Foundation, Dadant, lb.	$0.67
Light Brood, lb.	$0.70
Thin surplus for shallow frames, lb.	$0.72

Write for further information and bargains.

W. J. FOREHAND & SONS,
Fort Deposit Alabama

I. F. MILLER'S STRAIN

Italian Queen bees for sale. Northern-bred, for business from my best, *Superior Breeders*; gentle, roll honey in, hardy, winter well, not inclined to swarm, three banded. Queens a specialty, twenty-six years' breeding experience. Satisfaction guaranteed. Safe arrival in U. S. and Canada.

Untested .. $1.40; 3, $3.75; 6, $7.00; 12, $13.00
Select Unt.. $1.65; 3, $4.50; 6, $8.50; 12, $16.00

I. F. MILLER, Rt. No. 2, BROOKVILLE, PA

The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe Makes and burns its own gas. Casts no shadows. Clean and odorless Absolutely safe. Over 200 styles. 100 to 2000 Candle Power Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

MICHIGAN-BRED QUEENS—THREE-BANDED ITALIANS ONLY

TESTED DISEASE-RESISTERS

PRICES	June 15 to July 15			July 15 to Oct. 1			
	1	6	12	1	6	12	100
Untested	$1.50	$8.00	$15.00	$1.30	$7.50	$13.50	$110.00
Select Untested	1.75	9.00	16.00	1.60	8.00	14.00	115.00
Select Tested any time after June 20				3.00	16.00	29.00	
Select Day-old Virgins after June 1				.60	3.50	6.50	50.00

D. A. DAVIS, 216 GREENWOOD, BIRMINGHAM, MICHIGAN

ALWAYS GOOD QUEENS

I furnish the A. I. Root strain of resistant queens that produce as good as the best of honey-gathering leather-colored workers. A trial will convince you.

UNTESTED—$1.50 each ; - - - - - - 25 or more, $1.40
TESTED — $2.50 each ; - - - - - 25 or more, $2.25
SELECT TESTED, $3.00.

A. J. PINARD, MORGAN HILL, CALIFORNIA

---

200 SELECT TESTED QUEENS

Beginning August 1st, we will sell 200 select tested queens, selected from our 10 apiaries and bred from a $200 queen. These queens are the result of 35 years of practical experience in breeding the very best strain of Italian bees that could be obtained. Our guarantee is back of every queen. If you want to requeen your bees, you could not buy a better queen for a breeder. Prices of these select queens, $3.00 each in any quantity. Untested $1.75 each.

ORDERS FILLED IN ROTATION.

FRED LEININGER & SON, -:- DELPHOS, OHIO

QUEENS

''THE SUCCESS OF BEEKEEPING DEPENDS ON GOOD QUEENS''

Why not get those colonies headed with a good queen? Farmer queens are of highest quality, bred by us personally. We are skillful and experienced queen-breeders. 10 years' experience in breeding queens insures queens of highest quality. We do not leave anything undone. We guarantee our queens to be reared under as favorable conditions as any in U. S. A., and that no better can be bought with money. The strain is proved and of highest quality. Now for your 1921 honey crop you are wanting more honey; to get more you must have your colonies headed with good queens. Let us have your orders for August and September. We guarantee safety from all foul-brood disease because our apiaries are absolutely free from any disease.

Prices from August to September

	1	6	12	100
Untested.	$1.50	$7.50	$13.50	$1.00 each
Select Untested	1.75	9.00	16.50	1.25 each
Tested.	2.50	13.00	24.50	2.00 each
Select Tested	4.00	22.00	41.50	3.35 each

We guarantee everything we sell; you take no risk when you deal with us; safe arrival and satisfaction is our motto, customer is the judge. Reference: Bank of Ramer, Ramer, Ala.

The Farmer Apiaries - - Ramer, Alabama

''Where the Good Queens come from''

"Special Crops"

A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. $1.00 per year. Sample copy 10c. Address

Special Crops, Box G, Skaneateles, New York

INDIANOLA APIARY

Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, $1,00; Tested, $1.50. Nucleus, $2 per frame, queen extra.

J.W.SHERMAN,VALDOSTA,GA.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping-boxes, and three-frame nucleus colonies.

I. J. STRINGHAM, GLEN COVE, Nassau Co., N. Y.

This Ball Bearing APACHE Grist Mill

NO. 1 APACHE MILL
APACHE GRIST MILL
U.S.A.
CLARKSVILLE, TENN.

PREPAID FOR ONLY

$8.00

FEED the hopper, turn the wheel, and enjoy making your own wholesome whole wheat or graham flour, old-fashioned corn meal, rye flour, chops and hominy, and *bring down living cost.* Best coffee and spice grinder. If you have poultry, grind your chicken feed, save feed money and get more eggs.

Apache grinding plates of special mixture iron made to give longest wear. Steel ball bearings make it only a boy's job to run it. Send money or check today. Satisfaction guaranteed. For the present we can make prompt delivery. So don't delay.

A. H. PATCH, Inc., Clarksville, Tenn.

The Apache Grist Mill is companion to the Black Hawk Corn Sheller, famous for 35 years for its "Can't Wear Out" Guarantee.

NEWMAN'S ITALIAN QUEENS

Bred from the best. No disease. Satisfaction and safe arrival guaranteed.
Untested, $1.50; 6, $8.00; 12, $15.00. Select Untested, $2.00; 6, $10.00; 12, $19.00.
Circular free.

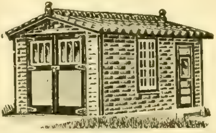
A. H. NEWMAN, - - MORGAN, KY.

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.



Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 883

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.,
833-883 Pike St., Cincinnati, O.

FREE
Samples &
Roofing Book

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas
Established 1899

Our Food Page—Continued from page 472.

or if you are inexperienced in bread-making, try half the recipe.

BREAD

2 cakes compressed yeast 1 tablespoon honey or
3 cups scalded milk sugar
3 cups water About $1\frac{3}{4}$ quarts sifted
1 tablespoon salt flour

Break up and soften the yeast cakes in 1 cup of the water which should be warm, not hot; scald the rest of the milk and water and pour into the bread mixer. When it has cooled to lukewarm, add the softened yeast, the other ingredients, and all the flour, and turn the crank of the mixer until a smooth, elastic dough results, three to five minutes, cover closely with a cloth to keep out drafts and put in a warm part of the kitchen to rise, about 80 degrees F. A little more or less flour may be necessary to make a smooth dough; a little practice will enable you to tell just how much. More flour may be added if the dough is too soft; or a little wetting may be added, if too stiff to work well. The rule is about 3 parts flour to 1 of wetting when made in a bread mixer, but I find I obtain best results with a little more. It all depends upon the absorbing power of the flour.

When doubled in bulk, in 3 hours more or less, turn the crank again until the dough collects in a ball on the mixer, remove and form into loaves. Four loaves may be made, or four smaller loaves with a pan of rolls. Cover and let rise again until doubled in bulk, brush with cream or melted butter, and bake about one hour in a moderate oven.

Whole wheat flour may be substituted for half or more of the white flour. In whole wheat or graham bread it is also well to omit a part of the flour, making a softer dough, as the coarser breads dry out more quickly.

If a mixer is not used the flour should be worked in gradually with a large mixing spoon, and in the case of white bread, kneaded for a time by hand.

RAISIN BREAD.

1 tablespoon butter or 1½ cups warm milk
margarin ½ cup warm water
1 tablespoon honey About 6 cups sifted flour
1 teaspoon salt 2 cups seedless raisins
I cake compressed yeast

Scald the milk, add the butter and honey, and cool to blood warm; soften the yeast in the warm water and add to the milk; add 2 cups of the flour,

(Continued on page 504.)

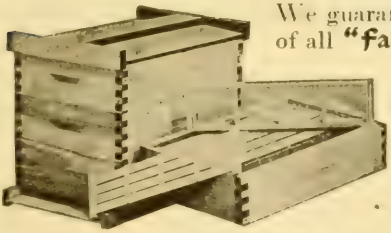
QUEENS OF
MOORE'S STRAIN
OF ITALIANS
Produce Workers
That fill the super quick
With honey nice and thick
They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.
Untested queens $1.50; 6, $8.00; 12, $15.00
Select untested..$2.00; 6, $10.00; 12, $19.00
Safe arrival and satisfaction guaranteed.
Circular free.
J. P. MOORE, Queen Breeder
ROUTE 1 MORGAN, KY.

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

"Sun Traps" Save Fuel
EVERY farm home and every feed lot should have a "sun trap"—a windbreak of Evergreens which keeps out chilling winds yet lets in the warm sunlight. Such "sun traps" save fuel and save feed.
For windbreaks, hedges and ornamental planting, use Harrisons' Evergreens. September is the ideal time to plant them.
Write for catalog today
Harrisons' Nurseries
Box 65 Berlin, Maryland

Safe Arrival Guaranteed by "falcon"



We guarantee the safe arrival and absolute satisfaction of all "falcon" queens and bee supplies bought from us. Nor does our service end after the goods reach you.
Keep in touch with us at all times and in all seasons; we are equally interested in your results with "falcon" articles, as in all your beekeeping needs.
Write for Our Red Catalog
W. T. FALCONER MANUFACTURING CO.
Falconer (near Jamestown), N. Y., U. S. A.
"Where the best beehives come from"

Our Food Page.—Continued from Page 503.

beat until smooth, cover closely, and set to rise in a temperature of about 80 degrees. When this sponge has doubled in bulk, add the raisins, the rest of the flour or enough to make a smooth dough, and the salt, which has been sifted in the flour. Cover and let rise again until it has again doubled its bulk, knead down, form into two loaves, let rise until again doubled in bulk, and bake in a moderate oven about fifty minutes. If kept at the proper temperature this bread should be ready for the oven in about 4 hours from the time it is started.

SCONES.

Sponge as for raisin bread
1 beaten egg
¼ cup melted butter substitute
2/3 cup honey
¼ cup shredded citron
1 cup chopped raisins
About 4 cups flour

Make a sponge as in the recipe for raisin bread, add the above ingredients when it has doubled in bulk, knead until it is a smooth, elastic dough, let rise again, roll out and cut into rather large biscuits, cut each biscuit into quarters, let rise and when light brush with egg white diluted with a little water, and bake in a quick oven.

BRAN RAISIN MUFFINS.

1½ cups flour
½ teaspoon salt
1½ teaspoons baking soda
1 teaspoon baking powder
1½ cups bran
1 egg well beaten
1½ cups sour milk
¼ cup honey
2 tablespoons melted fat
1 cup raisins

Mix and sift the flour, salt, soda, and baking powder and stir in the bran. Combine the next four ingredients, stir in the first mixture, add the raisins, and bake in well-oiled muffin pans about 30 minutes.

SULTANA BISCUITS

2 cups sifted flour
½ teaspoon salt
4 teaspoons baking powder
4 tablespoons shortening
1 cup Sultana raisins (seedless)
1 egg well beaten
About half cup milk
3 tablespoons honey

Combine the flour, salt, and baking powder and cut in the shortening with two knives, add the raisins, mix the egg, milk, and honey, and add to the other mixture to make a soft dough. Roll out, cut with a small cutter, and bake in a quick oven.

CONSERVE

1 qt. peaches, cut small
1 cup raisins, cut small
½ cup nut meats
Honey
Juice of half a lemon
Juice of half an orange
1 orange cut in very thin pieces

Combine the fruits and fruit juices, measure and for every cup of fruit add ¾ cup honey, cook until it thickens, add the nut meats and pour into sterilized jelly glasses and seal with melted paraffin, or it may be sealed in small fruit jars. It should be watched closely and stirred frequently to prevent scorching or acquiring a caramel flavor.

Queens--Rhode Island--Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, $1.25 each: 6 for $7.00. Circular on application. Queens delivered after June 1.

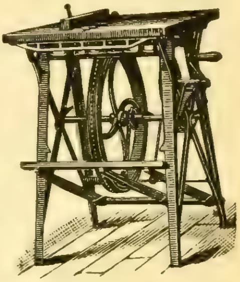
O. E. Tulip, Arlington, Rhode Island
56 Lawrence Street

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern Branch of The A. I. Root Company

Prompt and Efficient Service
BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.

If you have not received 1920 catalog send name at once.

BARNES' Hand and Foot Power Machinery



This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS

ALWAYS ON TOP

Established 1885

Write us for catalog.

BEEKEEPERS' SUPPLIES

The Kind You Want and The Kind That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co's brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

BANKING BY MAIL AT 4%

MAIL your Savings to this old-established bank—Your money GROWS with us, as we pay four per cent interest, compounded twice a year.

Detailed information gladly furnished concerning our Banking by Mail Department.

THE SAVINGS DEPOSIT BANK CO.
A.T.SPITZER, Pres.
E.R.ROOT, Vice Pres. E.B.SPITZER, Cash.
MEDINA, OHIO

Lewis Bee Supplies—Dadant Foundation

A full line of supplies for the practical bee men at your command. Additional information to beekeepers gladly supplied upon request.

A Post Card Will Bring Our Catalog---Write Dept. C.

Western Honey Producers -:- Sioux City, Iowa

THAGARD'S ITALIAN QUEENS

Bred for Quality. My Three-band queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

	After July 1st.		
	1	6	12
Untested	$1.50	$7.50	$13.50
Select Untested	1.75	9.00	16.00
Tested	2.50	13.00	24.00
Select Tested	5.00	22.00	41.50

No reduction in prices after July 1st. as stated in circular.

V. R. THAGARD -:- -:- GREENVILLE, ALABAMA

1920 QUEENS 1920

A colony of bees with a poor queen is worth the hive and fixtures. A colony of bees with a good queen has no limit in value, the honey flow alone being the determining factor. I am using my thirty-five years of beekeeping and queen-rearing experience to produce the best that can be produced, and sell at a figure that will sustain the high quality of my queens.

PRICES

One, $2; three, $5.50; six, $10; twelve, $19. All amounts over one dozen, $1.50 each. I sell only untested queens and make a specialty of this line. I select no queens, but try to have them all so good that there is little chance for selection. 1920 circular now ready. Season opens April first.

P. C. CHADWICK KERN COUNTY DELANO, CALIF.

WHEN YOU THINK OF BEEKEEPERS' SUPPLIES

THINK OF INDIANAPOLIS

We carry a complete line of Root's goods and we solicit your trade. Our slogan: Courteous treatment and prompt service. Catalog for the asking.

THE A. I. ROOT COMPANY (Indianapolis Branch) 873 MASS. AVE.

QUEENS

FROM SELECT BREEDING

Twenty Years of Experimenting. We have nothing but the very best.

3-Band Only

Price Cash With Order

Before July 1st

Untested	$1.50
Selected	2.25
Tested	3.00
Selected	3.50

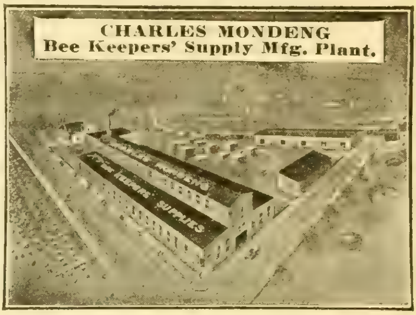
Orders filled in rotation. Write for prices in large qnantities,

Did you get what you were looking for when you bought your last year's Queens? If not, try one that will please you. My queens are reared on a new system, large and prolific, surpassed by none but superior to many.

F. M. RUSSELL

ROXBURY, OHIO R. F. D. No. 2

BEE SUPPLIES



The largest and oldest Bee Supply manufacturer in Minnesota can offer you **bee ware** that will keep that "satisfied smile" on your face. Excellent quotations given on frames, spacing or unspacing. Send for my 1920 Catalog and Price List. **Think** it over and in thinking **be wise** and save money by placing your orders **before** the rush is on. *Will Take Beeswax in Trade at Highest Market Prices.*

CHARLES MONDENG

146 Newton Ave., N. Minneapolis, Minn.

PENNSYLVANIA BEEKEEPERS

Just Received Another Carload of

ROOT'S QUALITY BEE SUPPLIES

STANDARD HIVES
SECTIONS
BUCKEYE HIVES
HOFFMAN FRAMES
SUPERS
COMB FOUNDATION
SMOKERS, VEILS, ETC.

Immediate Shipment by Freight. Express. or Parcel Post

John N. Prothero, Dubois, Pennsylvania

Formerly Prothero, Bailey & Goodwin

Jobber of Root's Goods for Twenty Years

SELL YOUR CROP OF HONEY

TO

HOFFMAN & HAUCK, INC.

WOODHAVEN, N. Y.

NO LOT TOO LARGE OR TOO SMALL FOR US TO HANDLE

**Mail Sample of Extracted, State Quantity and How
Packed and We Will Make You Our Best Offer**

CONTAINERS FOR YOUR CROP

All Sizes, Glass or Tin

2½-lb. Pails, per case of 24	$1.80 each	Crates of 100	$7.00
5 -lb. Pails, per case of 12	1.65 each	Crates of 100	10.70
10 -lb. Pails, per case of 6	1.35 each	Crates of 100	17.00
White Flint Glass Quart Jars (3 lbs. honey) with gold lacquered screw caps, per case of 12			1.10
5-Gallon Tins, used, good condition, 2 tins per case			.60

HOFFMAN & HAUCK, Inc. -:- -:- WOODHAVEN, N. Y.

Are you ready to properly market your crop?

Do you realize that good honey should be marketed in attractive, safe packages; that otherwise you will not get the maximum price for your honey?

Our fall specialty is a line of shipping cases and cans of this quality.

ROOT SHIPPING CASES

FRICTION-TOP PAILS

FIVE-GALLON SQUARE CANS

MAILING SAMPLES

FLINT GLASS JARS.

DROP US A CARD AND

ALLOW US TO QUOTE.

WE CAN INTEREST YOU.

The A. I. Root Company of Iowa,

Council Bluffs, Iowa

What can we do for you in the line of Supplies?

We are prepared to give our
best service in every way.
If short on foundation
order one or two
pounds by MAIL.
If almost out
of sections
order a
small
quantity by MAIL.
In this way you
will save time.

You will soon
be in need
of shipping
cases.
Let us
furnish
them for you.

Are You Going to Syracuse for Supplies?

Veils
Smokers
Tools
Hives
Supers
Sections
Foundation
Extractors

We are always
in the market
for beeswax.
Write us for
prices.
Cash or trade.

Don't forget
that it is
YOU we want
to serve.

F. A. Salisbury, 1631 W. Genesee St., Syracuse, N. Y.

HERE THEY ARE, MR. BEEKEEPER, AT NEWARK

Wayne County, New York, ready to answer your call, the best of everything!!

Just Read This List

Lewis Beeware, Sections, Shipping Cases, Frames, Hives, Hershiser Wax Press, and other supplies.

Dadant's Unexcelled Foundation, all standard weights and sizes. Also the Electric Wire Imbedder.

Bingham Uncapping Knives, including steam heated with oil stoves and generators.

Bingham Smokers, all sizes, with genuine leather bellows.

Root's Extractors, all sizes of hand and power Machines.

Bee Books written by all leading authors in beedom.

All Sizes of Friction-top Pails and also 60-pound Cans, new and second-hand. Also Cement-coated Nails for nailing beehives and supplies.

All-sized Spools of Tinned Wire, Bee Brushes, Feeders, Queen-rearing Cages, Bee Gloves, Capping Melters, and all practical supplies you will need.

A Market for your Honey or Wax, and a plant to render your Old Combs and Cappings.

Over 1,000 Beekeepers took advantage of this Service Station at Newark in 1919, for the first time. Now *all together* for a greater 1920.

New Catalog Free, and Our Discounts Will Save You Money. Address

The Deroy Taylor Co., -:- Newark, Wayne Co., New York

DOLL SAYS

don't invite Disappointments by delay in ordering your Honey Containers. Make sure of having all the Cans and Bottles you will need, by ordering them NOW. I am splendidly prepared to fill all orders for Friction Top Cans of 3 lbs. to 10 lbs. capacity—5-gallon Square Cans—and ½-lb. to 3-lb. white flint glass Screw Top Honey Bottles. Standard-grade goods, at prices that will interest you.

AN EASY WAY TO SAVE MONEY

You can save 15 per cent to 20 per cent on the cost of your Honey Cans and Bottles this year, by ordering them from DOLL—and instructing us to ship direct from factory to you.

I am also ready to make prompt shipments of anything wanted in the way of White Pine Hives, supers, extractors, Foundation, and other Supplies—none better to be had in either Style, Quality or Construction.

BE ready when the Honey begins to flow, by GETTING ready NOW.

Be sure to get my price quotations before ordering this year's Supplies.

P. J. DOLL BEE SUPPLY CO.

NICOLLET ISLAND MINNEAPOLIS, MINN.

Forehand's Three Bands

THE THRIFTY KIND

Twenty-eight years of select breeding brings these bees up to a standard surpassed by none, but superior to many.

Place your order now for August and September delivery.

No reduction in prices after July 1st as stated in circular.

PRICES:

	1	6	12	100 Each
Untested - - -	$1.50	$7.50	$13.50	$1.00
Select Untested -	1.75	9.00	16.50	1.25
Tested - - - - -	2.50	13.00	24.50	2.00
Select Tested - -	4.00	22.00	41.50	3.35

W. J. FOREHAND & SONS, FORT DEPOSIT, ALA.

THE BEE MEN

Queens Bees by the Pound Queens

The rush of our bee-shipping season will practically be over by July 1st; we will then be in position to take care of your QUEEN orders.

Just received a picture from a party showing a colony built up from about 2 pounds of bees and a queen last spring, 1919, and then weighed 330 pounds gross; others in the yard did better than that one. We have had colonies here gather 400 pounds spring crop.

A party wrote from Chicago: "The shipment of bees was received on May 7th this year, hived same day; did not examine until 18th, when we found all queens accepted and they had laid in three frames. We greatly appreciate receiving such good grade of bees and hope to favor you with larger orders in the future." Another from Nebraska: "Wish to tell you how well pleased I am with the business done with you; some of the 50 packages had less than 100 dead bees in them. Those queens of yours are the best uniform QUEENS I have ever received. What is your price on 200 2-pound pkgs. with queens for spring 1921?" Our QUEENS are hardy gentle Italians; they grow bees that fill the supers. GUARANTEE safe arrival and satisfaction on QUEENS. With my method of feeding can ship bees successfully in July and August. Get a few packages and build them for the fall flow or winter. Send for FREE Circular giving reference, prices by Parcel Post, Nuclei, Guarantee, etc. Twenty years a beekeeper.

Advertising, labor, and sugar have all advanced, yet we quote Bees and Queens July 1st balance of the year as follows:

	1	6	12	50	100
Untested Queens	$1.50	$7.50	$13.50	$48.00	$95.00
Select Untested Queens ..	1.65	8.25	14.85	52.80	104.50
Tested Queens	2.50	13.50	27.00	110.00	
Select Tested Queens	3.00	16.20			

1-pound pkg. Bees	$2.40;	25 or more $2.16 each
2 pound pkg. Bees	4.25;	25 or more 3.83 each
3 pound pkg. Bees	6.25;	25 or more 5.62 each

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALALLEN, TEXAS

E. B. AULT, Prop.

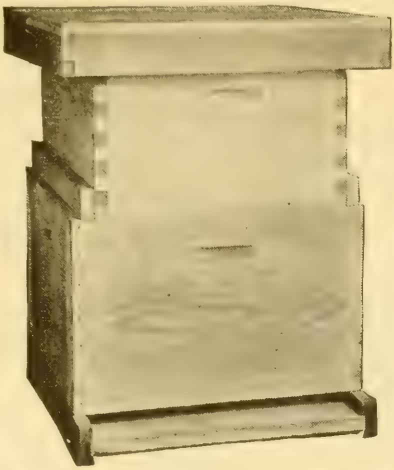
Modified Dadant Hive

Your present brood equipment can be put above the Modified Dadant hive used as full depth supers.

Features are: Deep frames, large one-story brood nest, frame space ventilation, excellence in wintering, swarming easily controlled.

Glance at this illustration to compare this hive with "Standard" Langstroth hive.

You can get 40 per cent greater brood-comb area than in the "Standard" ten-frame Langstroth.



Modified Dadant Hive Features.

1. Eleven frames, Langstroth length, Quinby depth.

2. Frames spaced 1½ inches for swarm control.

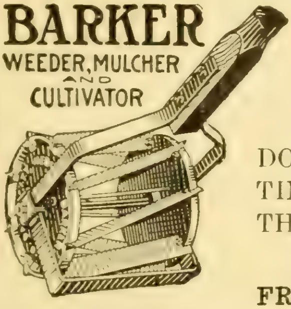
3. Extracting frames 6¼ inches deep.

4. Dovetailed body, regular reversible bottom and metal roof cover with inner cover.

5. Langstroth "Standard" equipment easily used with this hive.

For free booklet write any distributor of Lewis "Beeware," or to

G. B. Lewis Company - - - - - - - Watertown, Wisconsin
Dadant & Sons - - - - - - - - - - - Hamilton, Illinois



Weeds and Mulches

In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER MANUFACTURING CO.
Dept. 10 David City, Nebraska

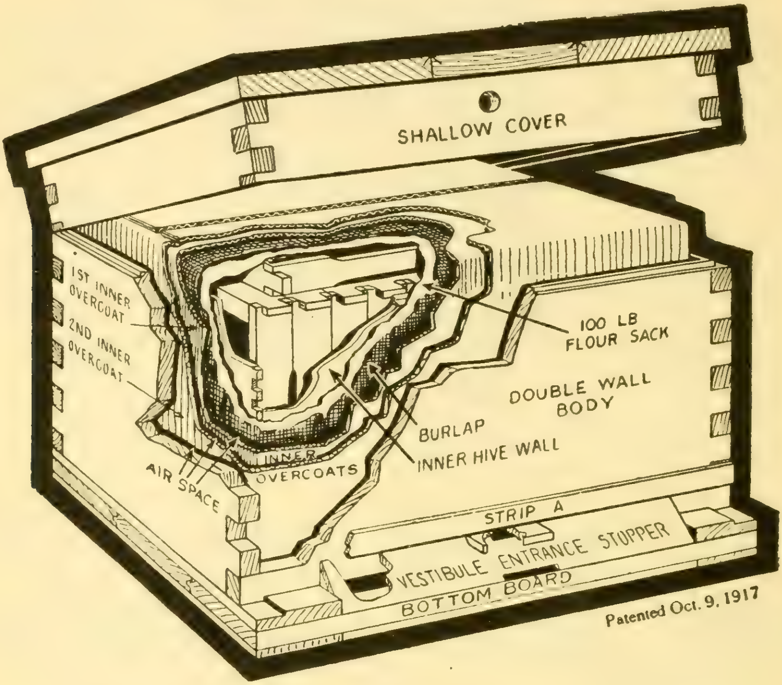
BARKER MFG. CO.
Dept. 10
DAVID CITY, NEB.

Gentlemen. — Send me postpaid your free book and Factory-to-User Offer.

Name

State Town R. R. No. Box

Winter Problem Solved by the Hive with an Inner Overcoat . .


SHALLOW COVER
1ST INNER OVERCOAT
2ND INNER OVERCOAT
100 LB FLOUR SACK
DOUBLE WALL BODY
BURLAP
INNER HIVE WALL
AIR SPACE
INNER OVERCOATS
STRIP A
VESTIBULE ENTRANCE STOPPER
BOTTOM BOARD
Patented Oct. 9. 1917

Furnished with Jumbo Depth or Standard Hoffman Frames

Plan to try out a sample shipment of these hives the coming Winter and be convinced of their efficiency and durability. Our Winter's loss the past Winter of 1919-20 was less than 5 per cent, and this was due to starvation and poor Queens. The bees were confined to the hives without a flight for about 120 days. These hives will Winter normal colonies perfectly under the most severe conditions. We have many testimonials too numerous to publish. The two Inner Overcoats with intervening dead air spaces and inner covering or blankets close up about the brood-nest is what does the trick. A person could have any amount of blankets fastened up on the walls of a room and still freeze to death if left in the center of the room without close-up protection or insulation. If you can eliminate your Winter Losses, think what it will mean to you.

Order early, as freight is slow and uncertain and will get more serious as Winter approaches. Do not fail to try out a sample shipment. Catalog and special circulars sent on request.

TIN HONEY PACKAGES

2 lb. Friction top cans, cases of 24
2 lb. Friction top cans, crates of 612
2½ lb. Friction top cans, cases of 24
2½ lb. Friction top cans, crates of 150
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 200
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 100

Ask for our special money-saving prices, stating quantity wanted.

A. G. Woodman Co., Grand Rapids Mich., U. S. A.

BEE SUPPLY PRICES

A Frank Talk with Beekeepers

No one likes high prices but the profiteer. We are all sick and tired and irritated by higher this, higher that, and higher everything. We have all waited for the turning point when things would begin ''going down.'' We, as manufacturers of beekeepers' supplies, have hoped for this turning point as anxiously as any beekeeper could. We have been encouraged by seeing some necessities, such as men's and women's clothing, going to lower levels, and have hoped to see lower prices reach to metal and lumber materials. We have expected the tide to turn in our field of metal and wood manufacture, hoping not to have to advance prices. So it is that we have made only a very few minor advances now for two years.

But the turning point of higher prices of materials does not come in our field, and is not in sight at this date, July 1—because the manufacturers of metals and lumber are today swamped with orders at prevailing high prices. These high prices are going to continue while the rush of orders continues—and there is no turning point in sight.

Prices asked today on pine lumber are more than double, and basswood three times as much as prices in effect two years ago. Except for the fact that we had a year's lumber supply purchased in advance we would have been compelled to advance prices a year ago for the past season.

Metal parts of our extractors, smokers, uncapping knives, queen-excluders, etc., have increased from two to six times their former cost to us. Our labor cost has increased 60% during the past two years.

We put these plain facts of our own manufacturing situation before our customers to explain the absolute necessity for advancing the prices of a considerable part of our bee supplies. It becomes necessary to do this if we are to continue to manufacture for the beekeepers without actual loss.

We say to our beekeeping friends and customers that we shall reduce what both they and ourselves regard as too high prices just as fast as the price of materials used in our manufacture may permit. We do not like high prices for the beekeeper any better than the beekeeper himself likes them.

ROOT QUEENS

1 Untested Queen.....	$2.00	24 Untested Queens...	$40.80
6 Untested Queens....	11.40	48 Untested Queens...	76.80
12 Untested Queens....	21.60	100 Untested Queens and upwards—special prices quoted.	

Inquiries as to tested or breeding queens invited. The demand for these often exceeds our supply. So order well in advance.

Write or wire when deliveries are wanted. We are producing in large quantities this season, and with advanced information as to the wants of our customers we shall at times be able to quote unusually attractive prices on large quantities.

The A. I. Root Company, Medina, Ohio

Books - Labels - Stationery

Two New Books

OUT-APIARIES, by M. G. Dadant. Many valuable hints to the beekeeper who would extend his operations are to be found in this cloth-bound book of 125 pages. The author has had a lifetime experience in out-apiary management. Price, $1.

AMERICAN HONEY PLANTS, by Frank C. Pellett. The first book in the English language on the honey plants. Invaluable to the live beekeeper who would make the most of his locality. The important honey sources of each State are listed separately and all treated in alphabetical order. 297 pages, 155 illustrations. Price, $2.50.

Other Good Bee Books

Langstroth on the Honeybee, revised by Dadant. 575 pages, $1.50.
First Lessons in Beekeeping, by C. P. Dadant, 167 pages, $1.00.
1000 Answers to Beekeeping Questions, by C. C. Miller, $1.25.
Practical Queen Rearing, by Frank C. Pellett, 105 pages, $1.00.

Labels

Now is the time to create a permanent demand for Honey. A distinctive label will help to attract the consumer to your product. There are none better than turned out by our shop. Send for our new catalog of latest designs.

Stationery

Attractive printed matter will help your business. The printer in charge of our plant devotes his entire time to printing for beekeepers. Anything in the line of printed matter for beekeepers. Best quality, prompt service, and satisfied customers keep our shop busy.

American Bee Journal

Hamilton, Illinois

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Gleanings in Bee Culture

After the Honey Flow in Wisconsin.

VOL. XLVIII September, 1920 NUMBER 9

WAREHOUSE JUST BEING COMPLETED TO

STORE YOUR HONEY

Let us store or sell it for you

-:-

Our Factory Has Been Enlarged to Insure More Prompt and Efficient Service.

-:-

Full Line of

SUPPLIES & FOUNDATION

all the time.

-:-

Always in the market for

WAX AND HONEY

Send in samples.

MILLER BOX MFG. CO.
201 NORTH AVENUE 18
LOS ANGELES, CALIFORNIA

"Griggs Saves You Freight"

TOLEDO

Now for the 1920 Honey Crop

We will buy it, both Comb and Extracted

We want especially White Orange, White Sage, White Clover, Basswood, Raspberry

Write us what you have, sending samples and prices asked in first letter

Second-hand 60-lb. Cans

These cans used only once, packed in good cases; 10 cases, 70c; 50 to 100 cases, 65c; 100 to 500, 60c

Beeswax Wanted

GRIGGS BROTHERS CO.
Dept. No. 25 Toledo, Ohio
"Griggs Saves You Freight"

Money Saved by Early Order

SEPTEMBER'S CASH ORDERS

DISCOUNTED EIGHT PER CENT

8% OFF!

Our guaranteed goods will please you.

Let us quote on your next season's needs at this time, so that you may take advantage of the Early Order Discounts.

THE A. I. ROOT COMPANY OF IOWA

COUNCIL BLUFFS, IOWA

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Editor Home Dept.

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Assistant Editor

H. G. ROWE
Managing Editor

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You'll Need an "Ideal Bee Veil"--True to its name.
$1.60 postpaid in U. S. A.

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Send us a sample of your extracted honey. We also buy comb honey. Tell us how much you have and what you want for it. We pay the day shipment is received.

WAX---OLD COMB.

We pay you the highest market price for rendered wax, less 5 cts. per pound for rendering charges. Our rendering process saves the last drop of wax for you. "Put your name on all packages."

THE FRED W. MUTH CO.,
"The Busy Beemen"
CINCINNATI, - OHIO.

1920 QUEENS 1920

A colony of bees with a poor queen is worth the hive and fixtures. A colony of bees with a good queen has no limit in value, the honey flow alone being the determining factor. I am using my thirty-five years of beekeeping and queen-rearing experience to produce the best that can be produced, and sell at a figure that will sustain the high quality of my queens.

PRICES

One, $2; three, $5.50; six, $10; twelve, $19. All amounts over one dozen, $1.50 each. I sell only untested queens and make a specialty of this line. I select no queens, but try to have them all so good that there is little chance for selection. 1920 circular now ready. Season opens April first.

P. C. CHADWICK KERN COUNTY **DELANO, CALIF.**

Lewis Bee Supplies—Dadant Foundation

A full line of supplies for the practical bee men at your command.
Additional information to beekeepers gladly supplied upon request.

A Post Card Will Bring Our Catalog---Write Dept. C.

Western Honey Producers -:- Sioux City, Iowa

HONEY *HONEY*

HONEY WANTED

Send us a sample of your honey if extracted, state how put up and your price. We are also buyers of comb, can use unlimited quantities if quality and price are right. We remit the same day goods are received.

C. H. W. WEBER & COMPANY

2146 CENTRAL AVE. CINCINNATI, OHIO

"EVERYTHING IN BEE SUPPLIES"
"SUPERIOR" FOUNDATION
HONEY CANS
We are at your service
Beeswax Wanted at Top Market Price

Superior Honey Company -:- Ogden, Utah
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

ALWAYS GOOD QUEENS

I furnish the A. I. Root strain of resistant queens that produce as good as the best of honey-gathering leather-colored workers. A trial will convince you.

UNTESTED—$1.50 each ; - - - - - 25 or more, $1.40
TESTED — $2.50 each ; - - - - 25 or more, $2.25
SELECT TESTED, $3.00.

A. J. PINARD, MORGAN HILL, CALIFORNIA

HONEY MARKETS

The honey market is not stronger than a month ago. The tumble in sugar prices has had a tendency to weaken the market, and the big buyers are apparently holding off. But if lower and more plentiful sugar has weakened the honey market, it has also assured the beekeeper of sugar for feeding if necessary—at a price.

U. S. Government Market Reports.

SHIPPING POINT INFORMATION, AUG. 16.

LOS ANGELES, CALIF.—Light wire inquiry, demand moderate for bulk stock, improving for package goods, movement limited, market steady, no change in prices. Carloads f. o. b. usual terms, extracted, white orange and white sage 18-20c, light amber sage 17-18c, light amber alfalfa 15½-17½c, Hawaiian light amber 14½c. Beeswax 40-43c per pound.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

BOSTON.—No arrivals since last report, practically no sales reported of honey; beeswax, demand and movement light. Sales to jobbers, per lb., South American and West Indian, 24-27c.

CHICAGO.—No carlot arrivals, supplies moderate, demand and movement improving slightly, market steady. Sales to jobbers, per lb., extracted, Colorado, Ohio, and Montana, alfalfa and clover, white, 20-21c, light amber 19c, dark ambers 18-19c, California white sage mostly 21c; comb, 24-section cases sage and alfalfa No. 1 $7.00; beeswax, receipts moderate, demand and movement moderate, market dull. Texas and Oklahoma, light 40-42c, dark 35-38c.

CINCINNATI.—No carlot arrivals since last report, supplies moderate, no demand or movement, no sales reported of honey. Beeswax, supplies light, demand and movement good, market steady. Sales to jobbers, average yellow 44-46c per lb.

CLEVELAND.—Supplies heavy, demand and movement light, market weak. Sales to jobbers, per lb., extracted, 60-lb. cans, Colorados, light amber alfalfa 17-18c, white sweet clover 24-26c, California white orange blossom 20c.

KANSAS CITY.—No carlot arrivals since last report, supplies moderate, demand and movement moderate, market steady. Sales to jobbers, new stock, comb, Kansas alfalfa, in 24-section flat cases, light $8.00, Missouri alfalfa and clover, light $9.00-$9.50; extracted, Missouri light amber alfalfa and clover 20-22c per lb.

MINNEAPOLIS.—Supplies very light, demand slow, practically no movement, market dull, too few sales to establish market.

PHILADELPHIA. — Approximately 17,000 lbs. Florida arrived, demand and movement moderate, market steady, few sales. Sales to jobbers, extracted, Florida light amber palmetto 20c per lb.

ST. LOUIS.—Supplies light, demand and movement slow, market dull, almost too few sales to establish market. Sales to jobbers, per lb., extracted, Arkansas amber, mixed flavors in barrels 17c, in cans 19c; comb, no sales reported; beeswax, supplies light, demand and movement limited, market dull, few sales to jobbers, prime yellow 35-36c per pound.

ST. PAUL.—Supplies very light, demand slow, practically no movement, market dull, too few sales to establish market.

NEW YORK.—Receipts by freight equivalent to 1 car California and 50 barrels West Indies arrived. Supplies liberal, demand and movement limited, market dull. Sales to jobbers and large wholesalers, extracted, domestic, per lb., California, light amber alfalfa mostly 17c, white orange blossom 17-18c, West Indian, per gal., refined $1.25-$1.40, mostly $1.25; comb, supplies very light, few sales. New Yorks, 24-section cases $7.00-$7.20; beeswax, no arrivals reported, supplies moderate, demand and movement light, market weak. Sales to jobbers and large wholesalers, per lb., South American and West Indian, crude, light 24-25c, dark 22-23c, African, crude, light mostly 23-24c, dark 20-21c, few 22c.

George Livingston,
Chief of Bureau of Markets.

Opinions of Producers.

Early in August we sent to actual honey producers scattered over the country the following questions:

1. At what price are producers selling extracted honey wholesale? extracted honey retail?
2. For what wholesale price are producers holding their extracted honey? their comb honey?
3. Are buyers active, and what are they offering wholesale for extracted honey? for comb honey?
4. Is there prospect of a fall crop? if so, from what source or sources?

Answers, as condensed by the Editor, are as follows:

BRITISH COLUMBIA.—Producers are selling extracted honey wholesale 29c, retail 35c; comb honey, wholesale 36c, retail 45c. Bulk of crop is not taken off yet. There is promise of a fall crop in some districts from fireweed.—W. J. Sheppard.

CALIFORNIA.—Producers are not selling extracted honey at wholesale. It is retailed at 25 to 35c. No comb on the market here. For wholesale price producers are holding their extracted honey at 20c for white. Not any buyers here. There is no promise of a fall crop owing to too hot weather and lack of moisture. Bean honey enough to winter well. Hot weather, but little fog and lack of moisture caused short bean crop. State Exchange made a big mistake to undersell buyers and demoralize the market for the time being.—M. H. Mendleson.

CALIFORNIA.—Producers are selling extracted honey wholesale 20c, retail 25c. Buyers are not active; they are offering wholesale for extracted honey 16-18c. There is promise of a fall crop from orange, sage, alfalfa, wild buckwheat, sumac, etc. Locations differ, some giving a full crop, while others are short.—L. L. Andrews.

COLORADO.—The general understanding seems to be that strictly white honey should bring 20c in carload lots. White honey, which includes the great bulk of our honey from alfalfa and sweet clover, 19c; light amber, 18c. The whole crop in districts where there is any water-white honey and not too much of the light amber should bring 19c. Comb honey has been selling for $6.00 to $6.50 in a local way for No. 1. Large producers have made no effort to sell as yet, and buyers are conspicuous by their absence. Bulk of crop is gathered in August and September where sweet clover is the main source. Chico (rabbit bush) is just beginning to yield and generally continues to yield considerable quantities of light amber honey till Sept. 15.—J. A. Green.

FLORIDA.—Producers are selling wholesale for 20c—the highest price obtained so far. No comb produced. Not enough honey to attract buyers. For fall crop, cabbage palmetto promises well, but bees are weak from not getting honey in so long a period; in fact, I have been obliged to feed considerable in some locations. There was a partial crop of mangrove honey along the coast in June.—Ward Lamkin.

IDAHO.—Producers are selling extracted honey wholesale at 20c. No sales of comb honey. Producers are holding their extracted honey, expecting 20 cents here. No reports of prices of comb honey. Small buyers of extracted honey are active; we seldom get offers for comb honey. We seldom get any late honey here; what there is comes from third crop alfalfa.—E. F. Atwater.

ILLINOIS.—Producers are selling extracted honey at retail at 25c; comb honey at 30c. For wholesale price producers are holding their extracted honey at not less than 20c, their comb honey at not less than 30c. The promise of a fall crop is poor. Heartsease, boneset, and asters are the usual sources.—A. L. Kildow.

INDIANA.—Producers are selling extracted honey wholesale 25c, retail 35c in pails; comb honey, wholesale $8.40 per case of 24 to retailers, retail 45c. All honey sold directly to consumers or to retail dealers. There is promise of a fall crop from goldenrod, buckwheat, mint, milkweed, heartsease, etc.—E. S. Miller.

IOWA.—Producers are selling extracted honey, wholesale 25c, retail 28-30c; comb honey, wholesale $7 per case, retail $8.00-$8.50 per case. Producers are holding their extracted honey at 25c wholesale; their comb honey at $7.00-$8.00 per case of 24 sections. Buyers are not very active yet. Inquiry is on the increase—not much comb honey here. Poor outlook for fall crop. Heartsease is thin; for this reason beekeepers are not inclined to extract too closely now.—Frank Coverdale.

KANSAS.—Producers are selling extracted honey wholesale 20c, retail 30c; comb honey, wholesale $7.50-$8.00, retail 40-45c. We have no large buyers here. Not much promise of a fall crop. Heartsease is our fall crop.—A. D. Raffington.

MARYLAND.—Producers are selling extracted honey wholesale 24c, retail 35c; comb honey, wholesale 26-30c, retail 40-50c. No buyers in this State; honey goes to market men, stores, or commission men. There is promise of a fall crop, enough for wintering, from aster, goldenrod and swamp weeds. We make no fall surplus, but get enough honey in good seasons to keep from feeding.—S. G. Crocker, Jr.

MASSACHUSETTS. — Producers are selling extracted honey wholesale 20-40c, retail 40-50c. No comb honey for sale. Have not seen any buyers, as most of the crop is sold right at home. I think there is promise of a fall crop from goldenrod and aster.—Omer M. Smith.

MICHIGAN.—Producers are selling extracted honey wholesale 24-28c, retail 35-40c; comb honey, wholesale 35-40c, retail 40-50c. For wholesale price some producers are holding their extracted honey at 25-30c; their comb honey at 35-40c. Buyers are not very active, but are offering wholesale for extracted honey 24-28c; for comb honey 35-40c. Flow is now on from buckwheat, goldenrod, and Spanish needle.—B. F. Kindig.

MINNESOTA.—Producers are selling extracted honey wholesale 18-20c, retail 30-35c. For wholesale price some producers are holding their extracted honey at 20-22c. Buyers are not active, but they offer wholesale for extracted honey 15-18c. The promise of a fall crop is fair, from sweet clover, goldenrod, aster and in some sections from fireweed.—Chas. D. Blaker.

MISSOURI.—Producers are selling extracted honey wholesale $3.00, retail $3.50-$4.00 per case; comb honey, wholesale, per case, 1st, $7.50; 2nd, $6.75; fancy, $8.40. Comb retails at 45-50c per pound. Some producers hold extracted as high as $10.80 a case. Buyers are offering wholesale for extracted honey, $3.00 per gallon; for comb honey, 2nd, $6.75; 1st, $7.50; fancy, $8.40 per case. Very little demand; too early in the season. Promise of a fall crop is not very good—getting too dry.—J. W. Romberger.

NEW JERSEY.—Producers are selling extracted honey wholesale 25c, retail $1.25 quart jar; comb honey, wholesale 30c. There is promise of a fall crop from goldenrod and aster.—E. G. Carr.

NEW YORK.—Producers are selling extracted honey wholesale 20-22c; comb honey $8.00-$9.00 per case. Buyers are offering wholesale for extracted honey around 20c. Too early for comb honey. The promise of a fall crop is not good here. Very little buckwheat; goldenrod may yield some.—F. W. Lesser.

NEW YORK.—Producers are selling extracted honey wholesale 25c, retail 35c; comb honey, wholesale $9.00-$9.50 a case, retail 50c a section. The promise of a fall crop is exceptionally good from buckwheat, second clover, goldenrod and aster.—Adams & Myers.

OHIO.—Producers are selling extracted honey wholesale 28c, retail 30c; comb honey, wholesale 35c, retail 40c. Some producers are holding their extracted honey at 26c wholesale; their comb honey at 35c. Buyers are active, offering 25c wholesale for extracted. Bees are now working on red clover and doing well.—Fred Leininger.

OKLAHOMA.—Producers are selling at retail extracted honey 20-35c; comb honey 50. There is promise of a fall crop from smartweed and cotton.—C. F. Stiles.

PENNSYLVANIA.—Producers are selling extracted honey wholesale 23-25c, retail 26-30c; comb honey, wholesale 30c, retail 35c. Buyers are "watchful waiting." There is promise of a fall crop from buckwheat.—Harry W. Beaver.

TEXAS.—Producers are selling extracted honey wholesale at 18c, at retail 30c; comb at 20c wholesale, 35c retail. Producers are holding extracted for 20c and comb at 24c. Honey market is very quiet. There is promise of a good fall yield from cotton, broomweed, bitterweed, asters, goldenrod and bone sap.—H. B. Parks.

TEXAS.—Producers are selling extracted honey wholesale 17c, retail 20c; comb honey, wholesale, 20c, retail 23c. Buyers are active, and there is more demand for comb. There is no promise of a fall crop at this time. In the como districts there will be a flow of honey from that brush, but it grows only in certain places and blooms in October.—J. N. Mayes.

EAST TEXAS.—Producers are selling extracted honey wholesale 15-17c, retail 25-30c. Buyers are active and are offering at wholesale for extracted honey 15-17c. There is promise of a fall crop, principally from field peas, bitterweed and white snakeroot.—T. A. Bowden.

TEXAS (Lower Rio Grande Valley).—I know of very little honey being sold. Extracted retails locally at 35c. I know of no buyers in this section. A normal fall crop will be produced from the usual sources. There is but little honey produced in this section outside of what is consumed locally.—A. Lynn Stephenson.

UTAH.—Producers are selling extracted honey wholesale 20c, retail 25-30c; comb honey, wholesale 25c, retail 30c. Buyers are not active. They offer for extracted, 19c for white. For comb honey there is only a local demand yet. There is promise of a good crop in the fall from alfalfa and sweet clover.—M. A. Gill.

WASHINGTON.—Producers are selling extracted honey wholesale 20c, retail 20c, with 20 per cent added, plus the labels, filling, cost of containers, minus the cost of 60-lb. can. Buyers are quite active, offering 20c wholesale for extracted honey. There is no promise of a fall crop.—Geo. W. B. Saxton.

WISCONSIN.—Producers are selling extracted honey wholesale 25-30c, retail 25-35c; comb honey, wholesale 33-35c, retail 35-45c. I have heard of some producers offering extracted at 23c; more at 25c; and most beekeepers are asking 25c to 28c. There has been very little movement of extracted in large quantities so far. We do not get a fall crop to any extent. In the central part of the State considerable buckwheat is produced, but there is no report on present condition of crop.—H. F. Wilson.

Advertisements Received too Late to Classify

FOR SALE.—Shipping screens for 8-frame Langstroth hives at 12½c each.
F. W. Morgan, Deland, Ills.

FOR SALE.—Three barrels, good quality, light amber honey at 20c per pound.
F. C. Ries, Macon, Ga.

WANTED.—Small extractor immediately. Cowan or Novice preferred. State price. Van Collins, Port Chester, R. D. No. 1, N. Y.

I. F. MILLER'S STRAIN

Italian Queen bees for sale. Northern-bred, for business from my best, *Superior Breeders;* gentle, roll honey in, hardy, winter well, not inclined to swarm, three banded. Queens a specialty, twenty-six years' breeding experience. Satisfaction guaranteed. Safe arrival in U. S. and Canada.
Untested .. $1.40; 3, $3.75; 6, $7.00; 12, $13.00
Select Unt.. $1.65; 3, $4.50; 6, $8.50; 12, $16.00

I. F. MILLER, Rt. No. 2, BROOKVILLE, PA.

ITALIAN BEES AND QUEENS

We are prepared to give better service in every respect than we have ever given in Bees and Queens and supplies

UNTESTED QUEENS

	To June 15th		After June 15th
1	$1.50	1	$1.25
12 or more	1.25	12 or more	1.00

TESTED QUEENS

To June 15th.............. $3.00 After June 15th........... $2.00

BEES

1-pound packages .... $3.00 2-pound packages $5.50

We will furnish one comb filled full of brood with one pound of bees for $5.50, no queen. You are almost sure that these will reach you in perfect shape. You get a 50c comb; they will build up much quicker than a 2-pound package. There is no danger of their swarming out.

NUCLEI

1-frame ..... $4.00 2-frame ..... $7.00 3-frame $9.50

No queens included at above prices.
Nuclei are on good combs, full of brood with plenty of bees.

FULL COLONIES

We can furnish, and can ship on date specified, full colonies of bees in new hives, good comb, and good strong colonies with **Tested Queens:**

8-frame .... $18.00 10-frame $20.00

DR. MILLER'S QUEENS

Let's make this a Miller queen year. Dr. Miller has furnished us breeders from his apiaries, and we are the only ones that he furnishes breeders to. In these queens you get the fruits of the foremost beekeeper of the world. We pay Dr. Miller a Royalty on all queens sold.

	To June 15th		After June 15th
1	$2.00	1	$1.50
12 or more, each	1.60	12 or more, each	1.25

We carry a full line of Root's supplies, including the new Root-Weed foundation, Prompt Service.

THE STOVER APIARIES

Successors to
THE PENN COMPANY
Penn, Miss.

MAYHEW, MISS.

Substantial packages are worth while for your high-priced honey

We sell ROOT SHIPPING CASES. They are well made and lined with corrugated paper thruout. The Standard Case holds twenty-four sections. We have a limited nnmber of twelve-section and sixteen-section cases at a bargain.

FIVE-GALLON CANS.

The ordinary five-gallon can weighs about 2¼ lbs. Ours weigh 3 lbs. each and have a 3-inch screw-cap. It is heavier than most cases. A case and two cans weigh 19 lbs.

FRICTION TOP PAILS.

We have the 5-lb. and 10-lb. pails in stock at Lansing. This means quick service and small delivery expense compared with shipments from some distant point.

NOTE: New crop comb honey wanted for which we can furnish cases and carriers.

We invite visitors to State Fair at Detroit to call on us at our exhibit in Bee and Honey Department.

M. H. Hunt & Son
510 North Cedar Street
Lansing, Michigan

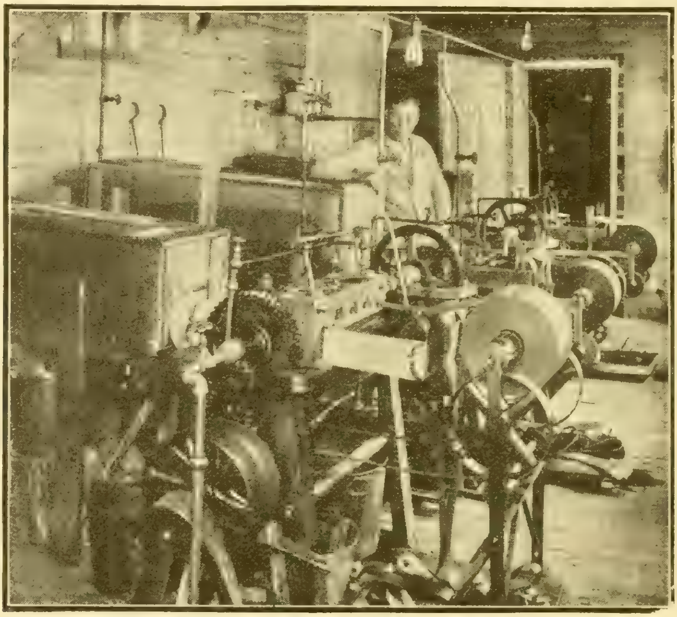
DADANT QUALITY IN MACHINE-MADE FOUNDATION

The WEED PROCESS was not invented in a single day. E. B. Weed, who invented the present system of machinery on which DADANT'S FOUNDATION is manufactured, made many experiments before he was successful.

Part of his experiments were made at the Dadant factory. Some of our older workmen can still recall the hot wax squirting everywhere from the jaws of different presses before the modern sheeting machine was finally evolved.

His process was promptly accepted by the Dadants as a step forward, not in the making of a foundation superior to the handmade, but of insuring quantities sufficient to supply an ever growing demand.

Into this process were carried all the care, all the pains, all the tests, which had made DADANT'S FOUNDATION so well liked.



Sheeting Wax on Weed Machines for Milling into DADANT'S FOUNDATION

Nailing machines have largely replaced hammers, and trucks taken the place of horses and wagons, but the same care, the same exactness of having all foundation first of all satisfactory to the Dadants and to the Dadant bees is still exercised and will continue to be.

DADANT'S FOUNDATION

Every Inch, Every Pound, Every Ton, Equal to any sample we have ever sent out. Specify it to your Dealer. If he hasn't it write us.

DADANT & SONS, HAMILTON, ILL.

CATALOG AND PRICES ON BEE SUPPLIES, BEESWAX, WAX WORKING INTO COMB FOUNDATION, AND COMB RENDERING FOR THE ASKING

EDITORIAL

Central Extracting Stations.

THE TENDENCY of the times is now more and more toward a central extracting station with complete power equipment and tanks, rather than toward small hand equipments at each individual yard or small portable hand equipments carried from yard to yard. E. E. Coveyou, Petoskey, Mich., one of the most extensive beekeepers of Michigan, told the Editor that it was very clear to him that a large well-equipped extracting plant to which the extracting-combs are carried and extracted, is far preferable to either of the other plans mentioned, for he had tried them all. His idea was to have a complete power equipment, tanks and all, located at his home, with no apiary at that point, to avoid the trouble with robbers when extracting the combs. Of course, he said, there will be bees brought in with the combs; but these, as they fly off the combs, go toward a screen, where they cluster. At the end of the day he makes them up into a nucleus or colony. After he accumulates two or three colonies in this way he takes them to some out-location and builds them up into an apiary. In this way he starts new yards, saves all the bees, avoids the danger of spreading foul brood from robbing, and, what is of considerable importance, avoids any trouble with neighbors at out-yards. When extracting it is almost impossible to avoid robbing when bees are near by. When bees at the close of the honey flow get a taste of new honey they are apt to make things disagreeable for farmers and others at an out-yard if the extracting is done on the spot. With his central station at his home, **where there are no other bees**, Mr. Coveyou avoids all robbing, and there is no disturbance at the out-yards other than would be occasioned by taking out and putting back the combs.

There is another point that is worthy of some consideration. The extracted honey, instead of being scattered at four or five different yards where thieves can get it, is **kept under lock and key at home.**

The modern automobile or automobile truck makes it possible to haul big loads of combs back and forth from the yards in a way that could not have been done a few years ago. It was then that a little portable extracting outfit had to be used at each yard.

There is still one more point in favor of the central station. There is no question but that a power extractor will get more honey out of the combs than a hand extractor; but just how much more it is impossible to say, but enough more to pay for the extra cost of the investment at the central station.

Mr. Coveyou also thinks that many beekeepers make a serious mistake in having a home yard at the central extracting station. Probably two-thirds of the beekeepers who have central stations have a yard of bees there also. This involves the nuisance of robber bees, opening and closing screen doors, danger of foul brood, and the serious danger of starting robbing and perhaps a lawsuit with the neighbors whose children or stock are stung. Ordinances are continually being introduced in councils forbidding the keeping of bees within village or city limits. While all such ordinances have been declared unconstitutional, the main trouble is not because the bees are in the village or city, but because of robbing induced by extracting in these urban yards.

Mr. Coveyou has a sixteen-frame power extractor of novel design—one of the largest, if not the very largest, machine in any part of the United States. He has also what he believes to be a practical machine for uncapping combs in a wholesale way. Many attempts have been made to make a machine uncapper that would do the work more expeditiously than any system of hand work. But practically all of them have resulted in failure. We hope to have illustrations showing some of Mr. Coveyou's ideas, for one has only to look over his place to see that he is an original genius—a man who takes long looks ahead and then puts those looks or ideas, if you please, into practical application.

Mr. Coveyou is one of the original bottlers of honey. He established the fact that honey can be sold locally in small containers some years before the large bottlers of the country had got under way. Altho a comparatively young man he is an old man at the business just the same. We hope to introduce him to our readers more extendedly later, and at the same time show some of his apparatus.

* * *

Good Honey Versus Sugar For Winter Food.

ELSEWHERE IN this number of Gleanings we have editorially commented on the importance of using good honey in place of sugar for wintering. Altho we have referred to the same thing in previous issues, the matter is so important that we must mention it again. In the first place, there is no assurance that we shall be able to get sugar for feeding bees, at a price we can afford to pay. Sugar syrup is slightly higher than good honey, and much higher than fall honey There is no greater foolishness in all beedom than to extract honey, or extract too close, and feed sugar syrup. When honey was relatively higher-priced, almost two to one, there was some justification for feeding syrup; but now that sugar syrup is more expensive than honey, the good beekeeper will, of course, let the bees have their natural food. It will be admitted, probably, that sugar syrup is the equal if not the superior of good honey **during the coldest part of the winter when there is no brood-rearing;** but after that starts in February and March, for outdoor-packed hives, honey is unquestionably better. Honey, as we now know, contains vitamines and other essential elements that neither sugar syrup nor even combs of pollen contain. (See page 538.) Every practical beekeeper knows that bees will breed better in the summer on honey than on sugar syrup; and why not in early spring or late winter?

The Editor has just come from a series of field meets in the various parts of the country where the winters are long and severe, and the general consensus of opinion among the large beekeepers is to the effect that good honey, especially where the bees make their own winter nests, is superior to sugar syrup—not for midwinter, but for late winter and early spring. Bees may do all right on syrup, provided the spring is favorable; that is to say, if they can get a little fresh pollen and nectar in March and April.

We have one report on hand of an extensive beekeeper who fed one portion of his bees sugar syrup very heavily the preceding fall. There was another lot he let have their natural stores—aster, goldenrod, milkweed—everything under the sun; but it was all sealed in the combs. Both lots of bees, packed the same, came thru in splendid condition up to the first of March. The spring was exceptionally bad, and the bees were unable to fly for a month or six weeks. The sugar-fed bees died out almost entirely, while the bees with the natural stores came thru in fine condition. The reason was that the sugar-fed bees could not breed to furnish young bees to take the place of the old ones. The latter died off, or, as we commonly say, spring-dwindled. Scores of the most extensive beekeepers of the country have told the Editor that our slogan of "honey in the place of sugar for winter food" is safe and sane doctrine. It is no new thing, because old veterans like Dr. Miller have been talking this same thing for years; but now that sugar syrup is higher than honey there is all the more reason why we should use honey this fall.

Sometimes beekeepers have found that bees in modern double-walled hives have died after a severe winter and spring, while bees in poor box hives, with no protection whatever, would come out in good condition. The reason is plain. The last-named bees would have **natural** stores and a winter nest without any tinkering of the brood-nest, while the other bees would have sugar syrup and a brood-nest manipulated "according to the latest ideas."

The foreman of our apiaries says that this year when honey has been coming in almost every day for two months, our bees have bred up better than ever before; that there is more brood per colony and more young bees than he has ever had before at this time of the year. Other years we have fed sugar a little every day for the same period, but while we secured increase the results were far below those of this year. Others have had the same experience. It simply proves that honey is a **natural** food and of course the bees do better on it.

Some years ago the Editor, together with some of our best beekeepers, advocated sugar syrup as the best stores for winter and spring, but he will never do it again.

There is just one more consideration: that whenever a beekeeper takes good honey out of his hives and substitutes sugar syrup he is making his own honey a competitor of himself and boosting the sugar business. At the same time he is helping the canard that beekeepers feed sugar to their bees and then sell that syrup to their patrons as honey. Of course, this can not be done profitably, even with cheap sugar.

We admit that beekeepers need sugar. Sometimes honey is infected with foul brood and can't be used. Some seasons are failures or partial failures. It is then necessary to use sugar syrup; but no beekeeper should extract too close and then make up the deficit with sugar syrup. The wise beekeeper, when the season is good, will reserve combs of good honey, if he has no foul brood, and then if he runs short in the fall on account of the failure of buckwheat, goldenrod, aster, or milkweed, he will make up the deficiency with these reserve combs. He will likewise give those reserve stores early enough so that the bees may form a winter nest. He will go further. He will give the colonies a sheltered location and put them in packing cases or double-walled hives. The more protection the bees have, the less stores they will consume. Then as the cold weather comes on he will contract the entrances, making sure that they are kept free during the winter.

Later: This article was submitted to A. I. Root. After reading it carefully he said it is safe and sound doctrine all thru, and then he said: "You might have added there is a big loss of syrup when you compel the bees to recap their sugar stores. There is a loss also in transmitting the syrup from the feeder to the combs, because the bees will consume some of the syrup when they don't need it." The early editions of his A B C of Bee Culture make this very clear.

* * *

A Hopeful Future for Beekeeping.

THERE NEVER was a time in the history of beedom when the future looked brighter for the beekeeper than now. This does not necessarily mean that he will get higher prices than were realized during 1919 (he may get lower), but it does mean that the business of honey production will be on a more solid foundation than it ever has been before.

While the market on honey, according to

the Government reports, has been a little weak, yet, in any event it will not fall proportionately more than other commodities, and therefore the earning power of the beekeeper will be the same.

The Editor is one who believes to a very great extent that sugar and honey are competitors—competitors because there is no real substitute for granulated sugar except honey for cooking, canning, for soft drinks, or for general table use. Glucose and its allied products never were and never can be competitors of honey, and the same might be said of cheap molasses. They have their own fields, it is true, but these fields do not overlap honey, as a rule.

Why are sugar and honey competitors of each other? For the reason already mentioned, that, whenever sugar is scarce, honey can take its place to a considerable extent; and when sugar goes up in price, or when it can be obtained only in limited quantities, honey, always available, is about the only substitute that can be used. Just read this from the last issue of a journal devoted to baking, entitled Dough, in its issue for July, page 15:

> "Bakers who find it hard to secure sugar for bread-making will find honey a good substitute. Honey gives the crust a rich brown color. Honey bread keeps fresh for several days, and honey imparts a distinctive flavor and odor to the loaf.
>
> "The use of honey permits cutting down the amount of yeast used. Formulas and recipes for using honey in breads, biscuits, and buns, can be found in the Baker's Review for June. With the present difference in price between honey and sugar a saving of from $1.10 to $1.50 is effected on every 1000 one-pound loaves."

Mind you, the above was not written by the editor of Gleanings nor by any other person interested in the honey business, but by one who is the editor of a journal devoted to **baking**. What he says has been voiced by local bakers. The further fact that big baking concerns of the country have used hundreds of carloads of honey, and were using it even when sugar was low in price and plentiful, shows that honey is, to a great extent, indispensable in baking.

The time was, before the war, when the big bakers of the country were using a substitute for honey—invert sugar. This is made by putting a little acid in a sugar syrup and applying a slow heat. The process changes the sucrose of granulated sugar into invert sugar—a product that has equal parts of levulose and dextrose. **So far as its sugar content is concerned** it is the same as honey, and will produce the same effect as honey in making the cakes keep. The bakers, of course, will use whichever is cheaper. When sugar was selling at 5½ to 6 cents a pound, invert sugar could be made for about one cent more per pound. This was cheaper than the ordinary honey at the time, and the bakers came very near dropping honey. Now the situation is changed. With sugar around 22 cents a pound, with artificial invert sugar costing still more per pound, and honey all ready for use in carlots at considerably less per pound, the bakers will naturally use honey. They must have invert sugar, whether it is the artificial product from granulated sugar or the natural article from honey.

What is taking place in the baking trade is also occurring to a lesser extent in the soda-water and ice-cream business. When sugar syrup is worth relatively more than honey, then honey, the only substitute, will be used in a large way. While sugar syrup and honey are more nearly on a parity, the former is still higher than many honeys.

Another consideration is the fact that the Nation has gone dry. Since alcohol has been barred from all drinks a tremendous boost has been given to the soft-drink business. The former topers, when they can't get ''home brew,'' use soda water or other soft drinks in large quantities. Many of the former saloons are now soft-drink parlors, and add to the list of regular soft-drink establishments that are today doing a bigger business than ever. It is a physiological fact that when alcohol is taken away sweets largely take its place.

There are ice-cream concerns now that are advertising ''honey ice-cream,'' buying the honey by the carload. They are finding that the public likes honey ice-cream, and ''honey'' is a good catchword in advertising. One very popular brand now being advertised in a large way in Cleveland is called ''Orange Blossom Honey Ice-cream.'' Large billposters can be seen all over that city and and vicinity extolling the merits of that particular article.

Honey is also beginning to be used as a ''dip'' on ordinary ice-cream. The minute it strikes that particular delicacy it becomes thick and waxy; and a few are now discovering that a honey dip is about the finest thing that has ever been served from an ice-cream counter. It follows that the ice-cream people will, if they do not now, use honey in a double way—in the cream itself and on top of it.

Honey as yet is used in only a limited way in the making of candy. Glucose and molasses, on the other hand, are used largely in cheap candies. When honey is used it is in the high-grade candies. Honey, therefore, is in no sense a competitor of glucose or molasses except as the public may buy these cheap syrups rather than honey.

When beekeepers once learn that good honey is a better winter food than sugar, instead of encouraging and boosting the sugar business by buying sugar to feed for winter, they will create another outlet for their own product and use honey. Pound for pound, honey will go further than sugar in a hive. Every pound of sugar the beekeeper buys makes one more pound of honey to sell and to compete with other honey on the market. While sugar syrup is all right, and a splendid food during the coldest part of the winter, when there is no breeding, it is a poor substitute for honey when the queen begins to lay. It is very doubtful whether sugar syrup only and combs of pollen are ever equal to good honey alone.

If so, the sooner this fact is pounded into the heads of beekeepers, the sooner they will build up their own industry. Sugar syrup at the present time costs more than honey. To extract the honey and feed the sugar syrup is a tremendous drain on bee life. Even if the sugar syrup costs only half the price of honey, it is a question whether the beekeeper can afford to extract his honey and feed the syrup. Elsewhere in this number of Gleanings we present some evidence on this point that is worth considering.

''But,'' you say, ''your optimism is based on the high price of sugar. Do you consider what would happen if the Government should get after the profiteers in sugar—those who are hoarding it, as they undoubtedly are—and bring the price down to ten cents, when honey would fall with a tremendous crash?''

A ten-cent sugar might depress the market on honey provided it could be had in quantities. We doubt if good honey will ever be cheaper than 20 cents retail. The awful war, expensive as it was, has introduced honey into the arts and trades, and it is going to stay there. The housewife, the baker, and the candy-maker, as well as the ice-cream people, have learned the use of this kind of sweet. What honey they have once furnished they will have to furnish again, because the public will demand it.

In this connection it is, perhaps, proper to observe that honey is being put on the table as it never was before. It can be obtained on most of the good trains, in many of the best hotels, and, what is more, it can be secured by the housewife in practically every grocery in the United States. The business of bottling honey in the United States has grown by leaps and bounds. In the last few years it has developed more than 1000 per cent. Honey for the table to spread on bread and butter or on breakfast foods has come to stay. Jellies and jams have ''gone out of sight'' in price, and honey is generally much cheaper and always available.

There is another factor that should furnish no small amount of optimism; and that is that Europe, due to the Great War, has learned something of the value of American white honey; and no product of the West Indies, of Africa, or of South America, so far as we know, has the fine flavor of the American product. When we say ''white'' honey, we mean clover, basswood, alfalfa, sweet clover, mountain sage, orange blossom, gallberry, tupelo, and we might add a score more of white honeys, such as raspberry and fireweed, which are found in some of our northern forests.

Let us now look on the other side—the conditions that are more favorable to the beekeeper. They are to be congratulated on the fact that we are discovering new and unoccupied localities where large quantities of honey can be produced, and that, too, in carlots. It is not necessary to overlap on the other man's territory. There is a further cause for congratulation; and that is, we are learning better how to winter bees. While disease is, perhaps, more prevalent than it ever has been before in the history of beekeeping, thanks to Uncle Sam and to the activities of our various States, we know better how to eradicate it than formerly.

Most of the important honey States have good foul-brood laws. The bee inspectors not only show how to treat disease, but how to keep bees better.

Alsike and sweet clover are spreading over the country at a tremendous rate. In many of the eastern States alsike, a wonderful honey plant, has all but crowded red clover out. The farmers don't care about the bee business, but they are finding that alsike clover will grow where red clover can not even get a foothold. Furthermore, thanks to extension men, the farmers are finding it pays to lime their lands. Where this is done splendid yields of clover result. Sweet clover is making a rapid spread all over the West, until is is now a question which is the more important honey plant, sweet clover or alfalfa.

Shipping bees in pound packages without combs is coming now to be a science. When there comes a severe winter, such as the last one, it is now possible for a northern man to buy bees in two or three pound lots in the South, and with the aid of these bees he may have as good or better colonies than those he has wintered over. Quite generally the package business has been immensely profitable to the shipper and to the consignee. We have had numerous reports of beekeepers who have secured from two or three pounds of bees in early spring 100 pounds or more of honey, and have a good colony, and enough stores for winter.

Last, but not least, there never was a time when Federal and State aid for the beekeeping industry was more freely offered than now. The various bee-extension courses under Dr. Phillips, of the Bureau of Entomology, have done a world of good in making **better** beekeepers. The Editor has heard on every side how the old veterans have admitted that they got a great deal of information from the Government men, who told them not only how to keep bees better but how to avoid winter losses and at the same time combat disease. In some cases the bee-extension men have brought these new and better ways right to the door of the beekeeper.

There is a large number of bulletins touching on the various phases of beekeeping that can be had for the asking. The apicultural departments of several of the States, particularly Michigan, have been sending out circular letters that deal with local and timely conditions.

If a beekeeper can not make good now, it is his own fault; and the whole outlook for beekeeping is brighter today than ever before.

WINTERING IN THE NORTH

Packs in Quadruple Cases in September and Feeds Later. How a Year-round Food-chamber is Provided

By Morley Pettit

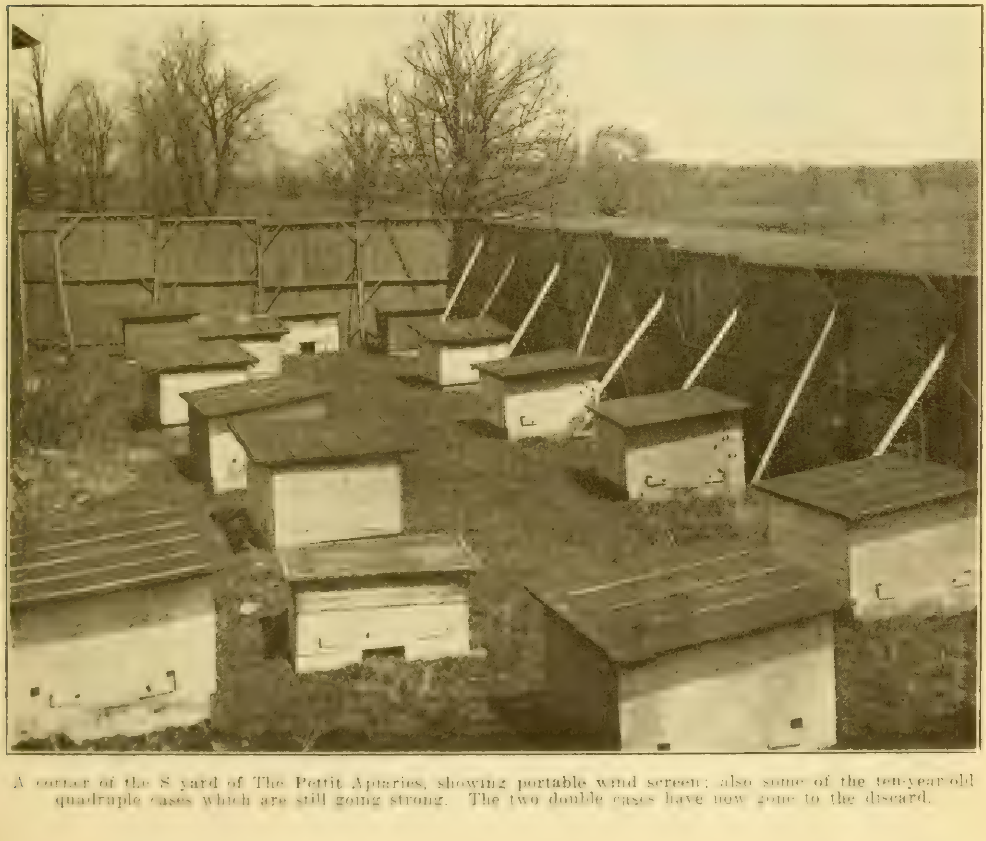
THE term "wintering" may be taken to mean the maintaining of colony strength during the inactive season. Building up colony strength for the harvest "spring management" is so closely associated with wintering that at The Pettit Apiaries we endeavor to combine them and make fall preparations so thoro that no further attention is required until extra brooding space is needed in spring.

Successful wintering depends on just a few all-important factors. These are the bees, the stores, the hive, the immediate surroundings, and the general surroundings rather vaguely designated in beekeeping literature as "locality." The bees must be vigorous and plentiful. That is, the colony must be strong in vitality as well as in numbers. To gain this, much depends on the queen. The stores must also be plentiful, and, especially for our Canadian winter, must be of the very best quality, preferably sugar syrup. The hive should be suited to the size of the cluster and during early autumn and late spring should have extra brooding space. It requires plenty of insulated covering to keep out frost. And there should also be ample shelter from winds. The part played by "locality" in wintering is rather indefinite, except that where winters are colder and longer, wintering becomes a more exacting science.

At The Pettit Apiaries wintering begins with attention to queen condition. I was almost going to say that it ends there, but there are some other important considerations. All thru the active season our queens are under observation, in the sense that after each colony has had careful attention, any defalcation, such as failing to store surplus, preparing to swarm, etc., is charged to the head of the colony, and something happens to her head—or thorax to be exact. Queen-rearing is started as early as the weather permits to provide for the requeening which goes on thus all the season. Toward the end the replacing of queens of doubtful record is quite general.

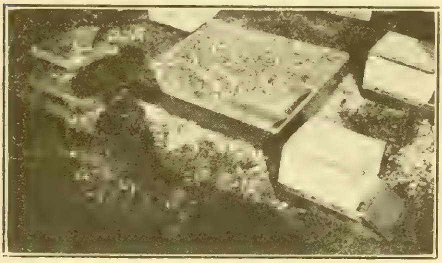
Three Important Points.

In further reference to the "bees" factor for winter, three important points are given



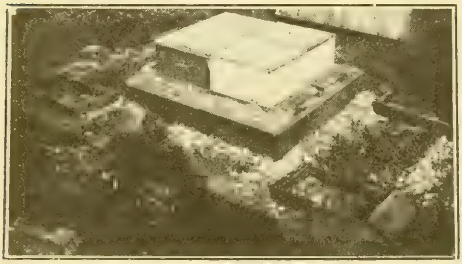
A corner of the S yard of The Pettit Apiaries, showing portable wind screen; also some of the ten-year-old quadruple cases which are still going strong. The two double cases have now gone to the discard.

careful attention when the white honey crop is removed. Ample stores are left for autumn brooding, plenty of brood-comb space is provided for the queen, and provision is made against the storing of fall honey, or in fact any other honey, in the brood-chamber. We produce extracted honey exclusively and use mainly the 10-frame Langstroth hive. To provide stores for the possibility of a dry fall we prefer to leave on each hive a shallow super which has been filled with honey earlier in the season. This "food-chamber," as Mr. Townsend calls it, we have been testing in a small way for several years and have decided to adopt it generally in all the apiaries. It is never removed from the hive but fills up in times of abundance and gives back in time of need. We prefer this to a double Langstroth brood-chamber for our conditions.



Stand of Pettit quadruple case in position ready for the hives except that shavings are pulled up above corner, to show construction.

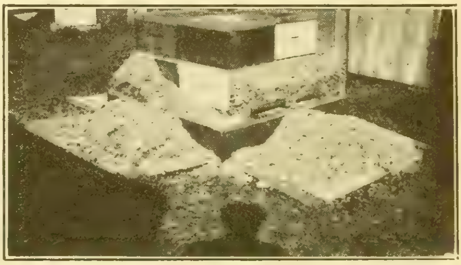
Increased brooding space is provided by using a light top-bar instead of the usual ⅞-inch depth. By careful sorting, all but the more perfect combs are eliminated. Some queens allow their brood-chambers to become "honey-bound." These queens also are eliminated. When the white honey is removed, two or three Langstroth supers of combs are returned to each hive over an excluder whether fall surplus is expected or not. This helps to give brooding space and keeps inferior honey out of the brood-chamber. Our policy is entirely at variance with that of removing supers early so as to crowd the brood-chamber with honey and save feeding, as we believe that works a double wrong by checking late breeding and endangering the winter health of the bees.



Hives in position on stand of Pettit quadruple case. The bridges are placed and all is ready for the sides to be set up.

Kinds of Winter Cases.

When cool days come in September all supers are removed and the hives are placed in winter cases. The aim is to get this done as early in the month as the weather permits the removal of the supers, as we believe the bees set their house in order for the winter better with the packing at least on the sides and bottoms. As no serious attempt has been made to standardize winter cases the beekeeper's imagination here has free play. He can vary the dimensions, the number of hives and their position, the kind of insulating material, and so on, ad infinitum—almost. If he has much initiative he proceeds to do this from time to time, having lots of fun out of it and eventually producing a case which he himself likes better than any other. If he happens to get into print with it he may win fame in an apicultural way by conferring his name upon the child of his imagination—or adoption!



Unpacking the Pettit quadruple case. Note how the shavings are carried away to storage on the sides of the case.

As a result of this experimentative turn of mind we now have seven different kinds of winter cases, three of which have gone to the discard and two more are on the way. As a novelty I shall describe one of the earlier types which we are always intending to remodel, but still use. What we call the M yard contains, as I write, nine boxes each with eight colonies. The hives are placed compactly in a double row in the box with two entrances facing each point of the compass, the end ones having side entrances provided by special bottom-board arrangement. They winter splendidly in these cases, as half of them have only one side which is not next to another colony and the other half have as much of that benefit as in a quadruple case; but the arrangement is inconvenient for obvious reasons, and they are to be discarded next year. Several years before Mr. Demuth's plan of wintering Langstroth combs on end was published, I tested the same principle by placing eight complete brood-chambers on end in a specially constructed case, with thin division boards between them taking the places of both bottom-boards and covers. Several of these cases were in use at one of the experiment stations in Ontario for two or three winters. Wintering results were excellent, but again the disadvantages seemed prohibitive. We now gain depth by using the reversible bottom-board deep side up, and in two yards where we used to produce comb honey the wedges are nailed fast to the bottom-boards. The lower space is again increased by the fact that special frame-rests bring the frames up flush with the top of the hive. Finally, over the frame is the bee-space of the feeder-board, which will be described later. Hives having food-chambers are deep enough for all winter requirements.

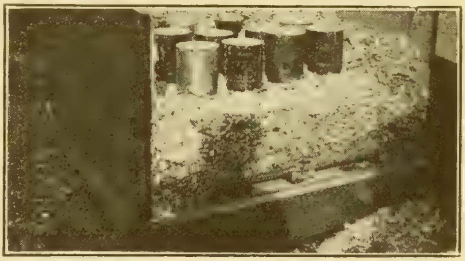
Every method has some objections which must be weighed against the advantages. At present our preference is divided between a single case left packed all summer and what we have heard gravely called the ''quadruped'' case, by some who were not up in their Latin. The advantages of the permanent packing in single cases are the saving of labor and storage space, and it is claimed that the equalization of colony temperature increases the honey crop. We have not tested them sufficiently to vouch for the latter claim, but have found that certain of our standard manipulations are made impossible and others are hindered by the presence of the case. Another objection is that when the covers are raised by extra supers, driving rain sometimes soaks the packing on one side, and the covers occasionally blow off. With the expectation of reducing these objections we are making up a number of single cases on an original plan which is not sufficiently tested for publication.

After all, however, the labor of packing and unpacking is not so great as it might seem, if the work is done systematically and the cases go together well. For this we much prefer a collapsible quadruple case made of ⅞-inch matched pine, with stand and floor in one piece containing bottom packing, sides of equal height all around, and a flat roof. We use four inches of packing underneath, six inches on the sides, and a foot or more on the top. The hives are supported by a 2-inch x 4-inch piece and two 1-inch x 2-inch pieces running lengthwise in the stand. These also support the bridges, and cheap thin lumber nailed on their under sides makes a retainer for the packing. The cases are so placed in the apiary that when the hives are set off on their summer stands almost directly in front of their winter locations they form double rows, alternately facing east and west, with just room for the cases between the rows which back each other. After the cases are piled away this alley provides a safety zone for apiary work. Of course, all parts of the cases are interchangeable, and, as the hives are all supered before unpacking, we would not consider lifting them out of permanently nailed boxes.

It is quite true that these cases are expensive. Still, with the best of equipment, the capital investment in beekeeping is much less in proportion to the returns than in other branches of agriculture. If well made and painted and given reasonable care, depreciation is negligible, especially with advancing prices of material. Ten years ago we paid $3.25 each for 35 quadruple cases all made up of ⅞-inch matched pine at the mill. They have been in use ever since, and have traveled some, but with extra nailing and a few patches they would be good for another ten. Even if half worn out they are now worth 50 per cent more than they cost. How shall we figure depreciation?

Feed and Feeders.

While September is our month for removing supers, and getting all hives into cases, October is the feeding month. Brood-rearing is pretty well finished by then, and the gathering of inferior fall honey is out of the way. As a final preparation for the long winter siege it is fitting that the winter nest should be well stocked with the best possible food for the Canadian winter—thick syrup made from extra-standard granulated sugar. With colonies warmly packed, by feeding now instead of earlier, and by giving each practically all it will take, we consider we secure the best results.


Pettit quadruple case with side removed to show method of applying and packing food pails.

To our way of thinking there is only one type of feeders for late feeding on an extensive scale. Ten-pound friction-top honey pails with perforated lids inverted right over the cluster place the supply where it can be taken with the least effort. With hives in cases and the pails themselves warmly packed, feeding may go on without interruption at a season when any other feeder I have tested would attract no notice. On the other hand, if it happens to turn warm when feeding there is no danger of colonies in cases being robbed, and the work of putting on need not be interrupted. Careful owners of small apiaries may criticise our late feeding, and it is true that if practicable we would like to feed all of our apiaries about the first of October, then get into our car, and drive off to Dixie; but as one's business extends the season must be prolonged, especially when reliable help is so scarce. Anyway, I have fed bees experimentally at the Ontario Agricultural College as late as January without seeing any ill results; but I would much prefer their having a good flight after feeding.

In applying the feed, the pails are inverted over holes in a thin cover of ⅜-inch pine, and planer shavings are immediately packed between and over them. The thin cover with holes for feeding we call a "feeder-board." In spring it is converted into a nucleus-board by covering the holes with wire screen, and later it becomes a bee-escape board. So it is not allowed much idleness, and in our permanent stock list is called a "combination board." The feeder board performs a very important function by keeping the bees in place while taking their feed, and by retaining the top packing which is so necessary in late feeding. Without this packing the bees often refuse to take the feed, and we feel that they ripen it better when they are kept warm.

Building used for central extracting plant, garage, etc., at The Pettit Apiaries. A few quadruple cases are shown

In making syrup for feeding we mix the sugar with steaming hot water in the proportion of two of sugar to one of water and stir until the sugar is dissolved. That is all. With due respect to scientific advocates of an inverting agent such as tartaric acid or honey, we consider the complications introduced by their use greater than their advantage. I believe a mixer such as is used in mixing spray material, or a large barrel churn might profitably be used. We had a 700-pound glucose barrel fixed to revolve and found it had some advantages; but it got out of order, and we have since mixed it with a paddle in two large capping cans which have been resting since the Peterson melter was introduced. The process is as follows: Pour a hundred-pound bag of sugar into the first can, then half its bulk of steaming hot water, and stir enough to prevent caking. Put more water over the fire, continue stirring the sugar, and when the water steams again pour another bag of sugar and its complement of water into the mixer, and continue stirring. Repeat until the first can is full, then fill the second, coming back to the first occasionally for more stirring. The time required depends largely on the facilities for heating water. With a cook stove one man melts 1400 pounds of sugar, which is the capacity of the two cans, in from seven to eight hours, and chops his wood from rubbish during that time. The feeder pails are filled by dipping so as not to stir up the small quantity of sugar which settles.

The pails, whether full or empty, are stored and handled in the same type of crates used for shipping honey, six pails in each. This makes a convenient unit for carrying, loading on trucks, etc. With proper care they will last for years. We have some that have been in use for eight years and are still doing duty. Their worst enemies are rust and the boy who removes lids carelessly, jamming them on the edges of the pails, causing leaks. Rust is caused mostly by leaving them on the hives too long after they are empty, until they condense moisture inside from the brood-chamber. It soon destroys the bottoms, and we are now treating all our pails inside with a thin coating of wax slightly softened with grease.

The rule in putting on the feed is to give each hive four pails. This may be varied by giving fewer to weaker colonies well stocked, or more to stronger lighter ones. This year after a particularly dry summer two pails were given to each colony not having a food-chamber, at time of putting into cases in September, then all were given four in October whether they had a food-chamber or not. Last year we were so fortunate as to foresee a sugar shortage and bought our supply in May. One week after putting on, the pails are removed, together with whatever syrup has not been taken, and it is amusing to see how colonies which cannot take all their feed sometimes seal up the perforations in the pails as if to save the remainder for future reference.

As mentioned above, the feeder-boards are left in place all winter except where food-chambers are used. They are covered first with the regular hive-cloth, then with several thicknesses of newspapers, and finally with planer shavings well pressed down. We consider that this gives some upward ventilation, in fact, quite enough where bottom packing is used. In some older cases

The Pettit "feeder board"

which have no bottom packing, greater care is taken to have the cloths porous and the papers plentiful, with the idea that papers will conduct moisture away while retaining heat. A large percentage of the top packing is contained in burlap sacks loosely filled and sewed. At the first examination in spring all loose packing over the hives is removed and stored; then by lifting out the sacks the hives are easily accessible for further manipulations.

Shelter from Cold Winds.

With reference to shelter from cold winds, we consider this almost as important as the packing itself. Without going to extremes and getting into hot spots where the bees "swarm their heads off," we try to select locations fairly sheltered from prevailing winds. Barring this we put up a portable wind screen about eight feet high, made of plastering lath nailed not too closely on frames six by eight feet.

After the bees have been prepared in this way, with careful attention to all details as outlined above, they require nothing further until warm days come in April. Even then they might safely be left until breeding room is needed in May; but since we are here, and since the food consumption of colonies vary so, we look them over to take care of any that may have nearly exhausted their stores. To all such a liberal supply of feed is given as in the fall, but, of course, in smaller quantities. A few queenless colonies are also detected at that time. The percentage of colonies that die out or are much weakened in winter or spring is very small indeed.

The wintering of bees in Ontario is no more uncertain, and requires less labor than the wintering of sheep, hogs, or any other live stock. It is simply a matter of starting with healthy, vigorous individuals and then providing the necessary food, shelter, and other care.

Georgetown, Ontario.

A REMARKABLE BEEKEEPER

Prof. Emilio Schenk, Now in this Country, Has Worked for 24 Years in Brazil Promoting Beekeeping

By the Editor

GLEANINGS' office was recently favored with a visit from Professor Emilio Schenk, who is now traveling on a five or six months' trip for the Agricultural Department of Brazil. He expects to spend several months in the United States, studying our methods of beekeeping and fruit culture. While here he is visiting many of our most extensive beekeepers. Those who are fortunate enough to have the privilege of entertaining him will thoroly enjoy his wide-awake enthusiasm. It is quite refreshing to meet a beekeeper who has kept bees all his life and yet retains so keen an interest and so great an ardor for the work.

The zeal which sends missionaries into foreign fields is no greater than that which Emilio Schenk tells of impelling him to work for less than nothing for years in or-

The apiary at the agricultural college at Porto Alegre, Rio Grande do Sul, Brazil.

der to spread better beekeeping methods among the Brazilians. In fact, he has been called a missionary beekeeper.

Starts a Bee Journal.

In 1896 he came from Germany to Curitiba, in the State of Parana, Brazil, where he found bees but no good beekeeping. On finding that the people had no understanding of the care of bees, he immediately established a modern bee-yard and organized a beekeepers' association. He also began a bee journal, ''Brasilianis che Bienenpflege,'' which is still published. Altho he sometimes had as many as 500 subscribers it is of interest to know that the first year only five paid for the journal and the second year only 25.

The Brazilian Beekeeper, Emilio Schenk, and His Big, Fine Family—a la Roosevelt.

Travels Among the Farmers.

Finding he could not reach as many farmers as he would like by means of his journal, he went to the State of Rio Grande do Sul in 1900, and also the State of Santa Catharina and began traveling among the farmers themselves. This traveling was by mule, and there were numerous hardships to contend with. Often he went hungry, and, in many cases, his advice and help were not wanted and his motives were regarded with suspicion. Prof. Schenk relates that it was incomprehensible to many that he should do good at such cost to himself, expecting no returns.

The farmers often had but a few colonies, yet some kept over 100. But, no matter how many there were, all were neglected and only the most primitive methods employed. To obtain the honey from the combs, the combs, brood and all, were simply squeezed in the hands.

Prof. Schenk took with him small models of a hive, smoker, and extractor, in order that he might more easily explain better beekeeping. All of this was a decided novelty to the Brazilians, and wherever he stayed over night the farmer's family would all crowd about him as he explained beekeeping. In case they became convinced of his sincerity he was allowed to remain and together they would make the hives and build up the apiary. During the three years that he traveled in this way he instructed the farmers in the care of their bees and installed for them 500 modern bee-yards of from 20 to 300 colonies each.

His Educational Methods.

The first edition of his bee book, ''O Apicultur Brasileiro,'' was published in 1901. It has now reached the fourth edition and is published in German, Portuguese, and Italian.

The first exposition for beekeepers he held in Porto Alegre, R. G. do Sul, in 1901, securing all the exhibits from his own apiary. This exposition was so successful that it was followed by others, in which the farmers also took part.

All the work of building up the beekeeping industry to which Prof. Schenk devoted himself for these first 15 years after arrival in Brazil was carried on at his own expense. His services were free and his expenses paid from his income derived from his own bees, and whenever this income fell short he was obliged to borrow.

At the end of these 15 years, in 1911, the Federal government of Rio de Janeiro and the State government of Rio Grande purchased his bee book, and in the same year he was employed by the Department of Agriculture in Rio Janeiro, as Professor of Beekeeping. In this capacity he was sent out to hold meetings and conferences among the farmers. During the last four years he has served as Professor of Beekeeping in the State School of Agriculture. This school has a four years' course, and in the last year all the pupils are required to study apiculture. In the accompanying illustration will be seen the modern bee-yard which he has established for the students.

Whenever Prof. Schenk has been occupied with other work, his family have always managed the bees during his absence. The oldest boy, Arthur, who is now seventeen, is a very good beekeeper and easily manages 300 colonies, together with poultry-raising; but, of course, has assistance in the work. Prof. Schenk tells us that his family, composed of Prof. and Mrs. Schenk and the nine children, uses 600 pounds of honey annually. If all the families appreciated honey as much as this family does, we would hear no talk of the need of developing a market.

The hive he uses is rather small, about 10 inches square, and 12 inches in height. He prefers this shape because, he says, such a size more nearly conforms to that used in trees by bees in the natural state. During the past three years there has been considerable loss from what Prof. Schenk believes to be Isle of Wight disease. He says he has lost as many as 200 or more colonies in about three weeks. A little later Mr. Schenk himself may tell us more concerning beekeeping methods in Brazil.

Mr. Schenk explaining modern beekeeping to visiting farmers.

FOUL BROOD PRECAUTIONS

Robber-cloth Used and Supers Returned to Their Own Hives

By E. R. Root

George B. Larinan of Pasadena, Cal., is one of the most extensive producers of orange and sage honey in California. He has his apiaries covering a wide range of territory, and, what is more, is one who seems to be almost uniformly successful whether the seasons are good or not. As I have formerly pointed out, no one can succeed in producing orange honey unless he knows how to winter well and have good, strong colonies at the beginning of the orange flow, and Larinan is that sort of man, judging by what I hear. He also believes it pays to have all the latest apparatus for extracting and anything else that will save human labor. Furthermore, he has his work systematized so that everything moves along without hitch or break.

Like many other beekeepers in California, he takes every precaution possible against the inroads of foul brood, particularly the American type, even tho he is not supposed to have it. One of the means to that end is to number all his hives and supers. When he comes to the extracting season the supers are taken off the hive, wheeled to the extracting-house, extracted and then returned to the hive whence they came. By the scheme that he uses, this is very simple and easy. If at any time foul brood breaks out in the apiary it will be largely confined to the same set of hives and supers all on one hive-stand. This is precisely the practice advocated by Dr. Phillips.

Some beekeepers in California do not believe there is anything in this. They claim that a foul-broody comb would infect the extractor, and that, therefore, the extractor would in turn infect every set of combs in the apiary. While this is true, the chances for spreading the disease are very much less when the supers are put back on the hive whence they came. Many of the leading beekeepers of California practice this plan. To say the least, it is a wise precaution.

The figure here shown illustrates two of

Two of G. B. Larinan's helpers taking honey off the hive. The supers are numbered with the hive numbers. All his work is planned so as to have all supers with their combs go on the hive whence they came. It will be noted that the robber-cloth, as shown just at the left of one of the workers, is constantly used. The object, of course, is to prevent the spread of foul brood if present. It will also be noted that the men are wearing Alexander veils. The Alexander, or some type of wire-cloth veil, is in almost universal use in California. The building in the background is the extracting-house with walls of galvanized iron. This is the prevailing type of most of the extracting-houses in California.

Mr. Larinan's helpers outside. One man shakes and the other brushes, the shaking being done inside of the super. It will be noted that the super on the wheelbarrow is covered with a robber-cloth. It is Mr. Larinan's policy not to have combs exposed any more than is necessary, and thus to prevent the spread of bee disease. When the wheelbarrow has two or three supers of comb it is pushed up to the extracting-house shown in the rear. The door is opened and immediately closed, when the combs are extracted. The boys then return for another set of combs; and when they come back again they get the previous set and carry it back to the hive to which it belongs. Mr. Larinan himself does the extracting while the young men outside do the heavier work. In other words, Mr. Larinan pursues the policy of saving himself as much as possible, as every beeman should do when he not only has to use his muscles but also his brain.

Wire-cloth Bee-veils Almost Universal in California.

It will be observed that the two men are wearing Alexander bee-veils. Solid wire-cloth veils, or veils with wire-cloth facing, are in almost universal use in California. They are more substantial and more sting-proof. Let me tell you, dear reader, that bees can and do sting in California; and nowhere, except on one occasion, did I find a beeman in the State who would go without a veil, and that is my friend C. F. M. Stone. For some reason the bees do not seem to sting him. I noticed they would sting me a dozen times when they would not sting him once. I conclude the difference is in the **smell** of the ''beast.'' There must be something in the name, as a stone has no odor, and a root may be sweet, bitter, or aromatic.

Joking aside, there is no question but that one who perspires freely will be stung much oftener than one who does not. Sweaty horses are much more liable to be attacked than those that are dry. Formerly I believed that it was the **behavior** and not any personal odor, because bees will sting some persons more than others. But I have changed my mind. Of course, if a person is stung once he is liable to be stung again shortly. This is on account of the odor of the sting that seems to call for more stinging.

FROM THE FIELD OF EXPERIENCE

NEW FOUL-BROOD PLAN

Eliminates Shaking in Transferring and in the Treatment of American Foul Brood

About five years since I made a cage, with the idea of transferring bees from box hives quickly and without cutting out the combs. It was a success from the start. I got all the bees and queen out quickly. The cage was made thus. I took the bee-escape or honey-board and cut a hole in it 4 x 6 inches and made a wire cage as large as the honey-board and eight inches high. To transfer a colony, remove the hive from the stand a few feet, put the new hive where the old one was, remove the top from the old hive, and place the honey-board as described on the hive with the wire cage in place. Get the smoker well started, put in it about one tablespoonful of carbolic acid, and smoke freely in the entrance of the old hive. The bees with the queen will soon be in the cage. Now remove the cage with bees in it to the new hive on the old stand. If they are slow in going down in the new hive, shake them gently off the honey-board and then out of the cage. The carbolic acid in the smoker puts everything out of the old hive in a rush. After the successful use of the cage in transferring it appealed to me as a good plan to use for foul brood to eliminate the shaking, as we well know the shaking plan in the hands of a careless operator will spread the trouble more than check it. I have used this plan in and about Wichita for several years. Bees are not so apt to abscond and the honey and the brood in the diseased hive can be removed and burned without spilling a drop of honey.

So much for the old or cage plan; but I have it beaten by my new plan, which is as follows: First, place the new hive where the old hive formerly was located (to be sure, the old hive must be removed first); next, arrange the old hive with alighting-board touching alighting-board of the new hive (except in cases of severe brood trouble, when I leave about two inches of space between, with a thin piece of board put on the two for the bees to walk across on). Leave the top and the sides open, and the bees will go across if handled right, and if a few do take flight they will alight at the new hive on the old stand. Have both entrances open the full width of the hives. Slide the cover of the old hive forward about two inches and smoke in the back of the hive at the top—not too much smoke (most of our beekeepers and many of our inspectors use too much smoke). This smoking will crowd the bees in front of the hive, and, when well started across, the volume of smoke can be increased. Some of our inspectors say they shake one frame or scoop up about a pint of bees and place them on the alighting-board of the new hive, thinking it helps to start them across. I have never found it necessary to try this plan, as they go for me and go quickly. I would advise plain smoke, no carbolic acid. One can very quickly make a colony very stupid and dull with too much carbolic acid. We have some inspectors here who killed thousands of bees with the cage plan the first few times they tried it, just because they used carbolic acid too strong and smoked too freely. The hives should be properly placed, and there should not be too much smoke to start with. I demonstrated both plans in transferring and in treatment of foul brood at the field meeting at Nickerson. Also at the State field meet at Manhattan where they have neither box hives nor foul brood, I put a colony in a new hive for demonstration. While both plans are a great advantage over the old shaking plan, the new one is much superior to the cage plan and is all-sufficient for transferring also. We know the plan works, as we have ten inspectors out here all using the plan successfully. There has been no complaint from any of them, only very flattering praise. It is safe to say there will be no more shaking for foul brood in Kansas.

Wichita, Kansas. O. J. Jones.

[We have tried this plan and find it works successfully. The only possible drawback we can see is the fact that a few of the bees take wing and, since the smoking causes some of them to fill up with diseased honey, if the hives are close together, there is a chance that a few, confused by the old hive being placed directly in front of their entrance, might enter near-by hives and thus spread the disease, just as they sometimes do when applying the shaking treatment. In comparison with the shaking plan, however, it seems to us this new plan is greatly to be preferred, since there is no possibility of exposing diseased honey where other bees may obtain it and so spread the disease. We are glad Kansas is giving the method so good a trial.—Editor.]

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PREVENTION OF AFTER-SWARMS

Dr. C. C. Miller States Objections to Plans Given in Previous Issue

Just how to allow a colony to swarm once and no more, allowing the old queen and a great majority of the bees to remain at the old stand, is a thing that many a beginner would like to know. In Gleanings for June, on page 352 and on page 356, the matter is discussed. I'd like to keep good friends with C. E. Deneen, and Editor Root, as well as Miss Fowls, but I cannot help asking: "Good friends, haven't you loaded down the plan with some things that really don't belong to it, and which will be likely to scare away the beginner from attempting to use it?"

By this time some beginner will say: "Please tell us what is the plan you are talking about." Well, if any beginner should ask me to tell him how to proceed to prevent the issuing of any and all after-swarms after the issuing of a prime swarm, I should say: "Hive the prime swarm and set it on the old stand, setting the old hive close beside it, facing the same way. A week later move the old hive to a new stand distant six feet or more." There it is in 38 words, if my counting machinery is in good repair. And the extra things you have added to it don't improve the plan, but are rather a damage to it.

I don't know who devised the plan—I wish I did. Certainly it is none of my devising. But there is good reason why the plan should work well, and in actual practice I think it has proved generally successful. Let us look at the philosophy of its working. In a normal state of affairs, a prime swarm issues about the time the first cell is sealed, and eight days later a virgin issues with the first after-swarm. This virgin likely issues from her cell a day or so previous to her swarming, or a week after the cell she has occupied is sealed over. On issuing from her cell, this virgin makes it her first business to go about and murder in their cradles all her royal baby sisters. Yet if everything is in a prosperous condition the workers stand guard over these royal babies, preventing their destruction, and the murderous princess goes off in a huff with a swarm.

If, now, at the time this first virgin issues from her cell, the hive which contains her is moved to a new location, all the bees which go afield will upon their return home go, not to the old hive, but to the old spot where it stood, and will join the swarm. Thus not a drop of honey will be carried into the old hive, and the bees, discouraged by such a state of affairs, will conclude they cannot afford to swarm, the royal babies will be left to the fierce wrath of their elder sister, or else they will emerge from their cells to battle one another till only one is left.

You see that so far as the beekeeper's part is concerned the thing is very simple. He has just two things to do: first to set the swarm pretty much on the same spot as the old hive; second, to move the old hive to a new spot a week later. It doesn't matter whether the old hive is put to the right or the left of the swarm, and possibly better than either is to put the old hive on top of the swarm. The point is to get the fielders at the psychological moment to desert the old hive and join the swarm.

Now let us consider some of the frills our friends have added to the plan. First, Editor Root says, page 352, "the plan of placing the old hive beside the new one, on the old stand, and tearing down all capped queen-cells and seven days later moving the old hive to a new stand." If I understand correctly, that adds to the regular plan the extra work of killing all capped queen-cells on the day of the swarming. Wouldn't that in many cases double the work? And what would be gained by it? The capped cells being killed the bees would continue the uncapped ones, and a week later there would be a number of sealed cells, but no virgin out of its cell ready to destroy the other cells. By the time the first virgin does emerge, the colony will have recovered from its shock, a force of bees will be carrying in honey, and its dollars to doughnuts that a swarm will issue, the killing of those sealed cells being the very thing to knock the whole thing endwise.

On the same page Mr. Deneen says we should look at the cells after the swarm has issued, decide by their appearance the time when the first virgin will emerge, and shift the old hive at just the right time to get in her murderous work without interference from the workers. His theory is all right, but will it be an easy thing in all cases for the beginner to carry it out in practice? He assumes that conditions may be such that the shift should be made in four days, or such that it should be in eleven days. And of course any time between four days and eleven days. (There's a chance for some skepticism about that eleven days, but never mind that.) The difficulty in deciding as to the age of the occupant of the cell is so great, and the work involved is so much, that I think I would rather shift all at the end of seven days, and then if "one in four or five would send out an after-swarm I would hive the after-swarms and unite them where they would do the most good. Altho Mr. Deneen's way might be easier for him, I don't believe it would be for me.

On page 360 Miss Fowls says: "All but the best queen-cell are torn down, and the old brood-chamber.......... is placed beside the new hive, with its entrance in the opposite direction so that the returning swarm will be prevented from finding its entrance and will, accordingly, enter the new hive on the old stand. During the following week the old hive is gradually turned about, moving it a little each time until at the end of the week it is close beside the new hive and facing in the same direction." Now 'fess up, Iona, honest Injun, isn't that something you never put in practice, but merely repeat what some one else has given? What's

FROM THE FIELD OF EXPERIENCE

that? "A large part of what I say is entitled to quotation marks." Please don't be disagreeable, but go on with what we were talking about. You are giving the Heddon plan, which I must say is likely on first acquaintance to appeal to one. The theory is that by having the old hive at first face backward all the old bees will go to the swarm. So they will. Then by gradually turning the old hive about the bees it contains will follow its entrance. You say "moving it a little each time," but don't say how often. I think Heddon said "each day once." That would mean six extra moves, and what have you gained by it? At the end of the week the hive is just where it would have been if you had set it there in the first place without the daily moving afterward, the only advantage being that you have more honey in the new hive and less in the old. Maybe you will think that pays for the six movings and maybe you won't. At any rate, in either way all the field bees will join the swarm at the end of the week; and that's what you want. You say "all but the best queen-cell are torn down." I don't think Heddon gave that, but it's a frill of your own or somebody's else. But why do it? The whole gist of the plan is to get the bees to tear down the cells, and here you are taking the job out of their hands. And if you're going to do the job, why not shorten it by setting the old hive in the first place at a distance and then killing the cells?

Now if you three have anything to say in defense of your wicked course, come on, but please come one at a time.

C. C. Miller.

[That is right, Dr. Miller, get right after us whenever we need it. Knowing that you are on our trail makes us more cautious in our statements.

In regard to the plan given by Mr. Deneen I (not Mr. Root) have plainly misinterpreted his meaning in the comment suggesting the tearing down of all capped cells, for that would make it certain that no virgin could issue with a swarm for eight days, and probably not at all. Since he found as many as one in four or five issued, he evidently did not take this wise precaution. You say that the "prime swarm issues about the time the first cell is sealed and eight days later a virgin issues with the first after-swarm." So it is clear that if only capped queen-cells are torn down when the swarm issues the first after-swarm will be delayed a very short time, only the length of time it takes to cap a queen-cell. So why worry about so short a delay? But we all know there is no certainty as to the exact time of the issuing of the first swarm; the time may vary several days. In case some queen-cells had been sealed several days when the first swarm issued, then, of course, tearing down the capped cells would cause a longer delay, but even then the time between the first and second swarms would be about the same as in the case of a swarm issuing as soon as the first cell was sealed. It seems to us that if colonies always swarmed when the most advanced queen-cell was at a certain stage in its development, then a rule might easily be given as to the exact time the old colony should be moved in order to get the fielders to desert the old hive at "the psychological moment," but unfortunately swarms do not issue with any such regularity in regard to the age of the most advanced queen-cell. To be sure it is more trouble to tear down those capped cells, as we suggest, but it prevents the possibility of after-swarms before moving away. After being moved away, with the consequent loss of fielders, we believe no one need have fear of after-swarms. So much for theory and now for actual practice. This same feature which Dr. Miller criticises, we employ in the plan we use and yet do not remember having had an after-swarm for years.

As we stop to think of it, our plan is practically the same, only we put the old hive above the supers on the new stand instead of beside the new hive. We tear down all the capped cells and seven or eight days later move the old hive to a new location. For us the plan works finely.

In commenting on "Talks to Beginners," Dr. Miller asks why we do not set the old hive in the first place at a distance and tear down all but the best queen-cell. Now that is exactly what we do in case a swarm issues in spite of the swarm-prevention plan given on page 359 of the June Gleanings, and that is the plan we also gave on page 361 of the same issue; but you see in the plan we gave, page 360—the plan which Dr. Miller criticises—we were telling the beginner how to keep together as large a working force as possible in order to obtain the most comb honey from a colony that is inconsiderate enough to swarm. Now, altho my father used the plan with success years ago, we frankly admit that we do not now use this plan because we are not beginners and we are handling more than two or three colonies. If we were handling only one or two colonies, and if we wanted as large a surplus as possible from the colony, we would probably use the plan in question. We certainly would not leave the old hive with entrance beside the new one, even altho Dr. Miller and other good authorities recommend it; for, in order to get as much honey as possible in that new hive, we want all the returning swarm to enter it. To have those bees in that hive one week later would not satisfy us; we want them there without delay, the same day they swarm. When I was a child and my father allowed natural swarming, I used to hive swarms when I was not strong enough to lift the old hive and supers of honey, and I accordingly swung the old hive about one of the lower back corners as an axis and then placed the new hive on the old location as nearly as I could. I very soon found that if the entrances were near each other, many of the swarming bees on returning would swell the numbers in the old hive, just where we did not want them. And, many times, most of them that did enter the new hive would soon leave it and join the bees in the old hive, even deserting their queen to do so. So I learned that in order to get the bees in the new hive where they belonged, the entrance of the old hive should be out of sight of the returning bees. Usually, facing the entrance in the opposite direction was effective.

Let us admit again that the way Dr. Miller suggests would be much easier for one who does not care to handle bees more than is necessary. Yet we were not attempting to give what we consider the easiest way for the beginner, but rather what seemed to us the safest and best way. That is also the reason we advised tearing down ''all but the best queen-cell.'' If no queen-cells are destroyed by the beekeeper, then when the first queen hatches the other cells will be torn down; but unfortunately the first queen to hatch is not always the best one, therefore we prefer to choose between them in case we are not too crowded for time. True, some of these so-called ''frills'' may take more time and work, but all the better; the beginner will graduate from the beginner's class just that much sooner.—Iona Fowls.]

IT SOLD HIS HONEY

How an Arizona Beekeeper Did Just What Other Beekeepers Can Do

Spasmodically there is a flare-up of talk on the subject of educating the public to the use of honey. The bee journals often point out the necessity for local and national advertising. However, the average honey producer knows little or nothing about how to go about it. He knows how to produce a first-class article of commerce; but just how to produce a healthy demand for that article he seems to be at a loss.

Last fall I faced the necessity of disposing of a larger crop of honey than usual. I was also faced by the fact that my local market (three thriving mining towns) was using little or no honey at all. Owing, perhaps, to the recent sugar shortage which forced many people to the use of honey, my former customers seemed to have foresworn honey altogether. I decided to whet the local appetite by a newspaper advertising campaign. In this I was favored by the fact that the territory was well covered by the local daily.

I accordingly contracted for a four-inch space in the paper, the copy to be changed daily. Simultaneously with the appearance of my first ad the editor gave me a column write-up on the front page. This story was a sample of how the newspaper reporter can, but seldom does, write up the bee industry to our profit. I submit two of the ads as samples of how to advertise honey locally:

MY WIFE SAYS

"Dad, the bees have done fine. Now you get out Old Lizzy and go up and tell folks through the News that Woodruff's pure honey is now ready for the festive flapjack."

When Ma says anything she usually gets action. So here you are, folks. Just ask your grocer for Woodruff's Pure Honey. It costs only two bits a pound, one-third the price of butter and makes a better spread. It is put up in new bright, 2, 5 and 10-pound cans. If your grocer hasn't it, drop a postal to

Woodruff, the Honey Man
COTTONWOOD

HOLLOW CLEAN TO THE TOES

Yes, that's the way Jimmy and Mary are when they come home from school "My gracious!" exclaims Ma. "What shall I fill those kids up with? Butter costs six bits a pound and they don't eat dry bread."

Why, dear woman, just smear that bread with Woodruff's Pure Honey. They will like it better than butter and it will build just as much brain, bone and brawn. It costs only one-third as much as butter.

Woodruff, the Honey Man
COTTONWOOD

Whether deservedly so or not, the ads produced quite a little talk, and, what is more to the point, they produced honey sales. The following editorial squib in the daily paper gives the facts very succinctly:

''It recently occurred to W. E. Woodruff that if advertising would sell clothes, belting, hairpins, molasses, tires, automobiles, candy—any article you care to mention—it would sell honey. So he evolved a series of simple, homely talks to people about honey, a subject of which the general public is almost totally ignorant. While he advertises honey in general he never forgets to mention Woodruff's. The results are simply wonderful. Grocers throughout the Verde district report that customers never call for just 'honey' any more—they call for 'Woodruff's honey.' And they are selling more honey than they ever sold before, too.''

Any of Gleanings' readers are at liberty to use the ads given here. If they can make better ones, fly to it. W. E. Woodruff.

Cottonwood, Ariz.

SIFTINGS

J. E. Crane

I WISH every person who puts up extracted honey for market could or would read that editorial (page 458 in August Gleanings), warning extracted-honey producers to avoid some of the present slipshod methods of putting up their honey in poor boxes and in yet poorer tin cans. One who has not bought or handled such packages can not realize the disgust of the buyer or the actual loss that comes from the use of such inferior packages. A good point is made when the writer says: ''If the producer will pay out a little more for good containers, the buyer will be more likely to pay more for the honey. Good containers have a salvage value, while poor ones are often worse than junk.'' Just so. We have quantities of poor cans, and the only way to dispose of them seems to be to knock holes in them and throw them into a lake or pond. We dare not dump them on land for fear of scattering disease.

Good new cans that have never been used before we can sell for a fair price. We had a call from a very careful (and I might almost say fastidious) beekeeper for such second-hand cans a short time ago, and after receiving them he ordered again.

* * *

J. L. Byer says, on page 477, it is hard to understand the difference in the flow of nectar in different sections or countries. The reason for the difference in the flow of nectar in different sections or in different years or on different days is a fascinating subject and one that none of us fully understand. If one is anxious to sustain a reputation for wisdom, it is better for him to look wise and say nothing. I have given the subject a good deal of thought for more than 50 years and am free to say that I know but little about it. Of course, if it rains or is extremely cold, or the earth is parched with drouth, we get but little nectar; but, aside from these conditions, who can tell?

One year the flowers yield well if the wind is south, but little if in the north. The next year the direction of the wind seems to make little difference to the nectar flows. One year a thunderstorm will check the flow or entirely stop it, while the next year it seems to make little or no difference. Forty years ago this very season there was an unusual basswood bloom. For two weeks the bees gathered little from it. Then there was a change and nectar seemed about as plentiful as it well could be, and in the next five days they filled their hives and stored considerable surplus.

* * *

The ''Onward March of Alsike Clover,'' page 458, is of decided interest to those of us who depend wholly upon clover for our surplus honey. While it has not proved a great success on sandy or gravelly soils, it has made good on all clay or strong soils, and too much can not be said in its favor. It seems hardly possible that a plant almost or quite unknown in the United States 70 years ago should be so generally grown for hay today, or that a plant of such exceptional value should have been so late in being brought into cultivation.

The Rev. L. L. Langstroth, writing in 1853 (that is 67 years ago now), says: ''For years I have attempted to procure thru botanists a hybrid or cross between the red and the white clover, in order to get something with the rich honey-producing properties of the red, and yet with a short blossom into which the honeybee might insert its proboscis...... I had hoped to procure a variety which might answer all the purposes of our farmers as a field crop. Quite recently I have ascertained that such a hybrid has been originated in Sweden, and has been imported into this country by B. C. Rodgers of Philadelphia. It grows even taller than red clover, bears many blossoms on a stalk, which are small, resembling the white, and is said to be preferred by cattle to any kind of grass, while it answers admirably for bees.'' It is interesting to note that what Langstroth longed for had already been originated by the hand of the Creator, or something better, for a cross between the red and the white clover would doubtless have been seedless or nearly so, while alsike clover seeds abundantly.

* * *

Traveling by auto some 75 miles a few days ago to the north of the State, it was just fine to note the growing crops, and the second bloom of white and alsike clover as well as sweet clover near the roadside. At one place the air was filled with fragrance. I thought at first it was alsike clover, but it seemed denser or heavier. Upon turning to look I saw a field of sweet clover in full bloom. In another place I saw a pasture of sweet clover. My! But didn't it look good to see cattle feeding, with the clover up to their ears.

* * *

E. J. Ladd, on page 476, reports the clipping of the queens to get a supersedure. We have many times found a queen, with a useless leg or a minus leg, that her children had had the good sense to retain. It would seem that they were wiser than those beekeepers who would cripple them.

* * *

It seems probable that the honey crop in Vermont will not be more than one-half that of last year. There will be a smaller yield per colony and not more than 60 per cent of the colonies kept a year ago.

VITAMINES IN HONEY

Stancy Puerden

THERE, if that title does not cause every up-to-date beekeeper to sit up and take notice, then I do not know beekeepers. A year and a half ago, in Our Food Page, I made the statement that there are vitamines in honey and thereby started something. Among the many letters it called forth was a particularly nice one from England, and there were some doubting articles in other magazines. One scientific beekeeper cautioned the editor of Gleanings not to let Stancy Puerden say too much about vitamines in honey lest she should have to ''back water'' in the future, which would be embarrassing.

While I was just as sure as I am now that honey contained vitamines of some sort I did not, at that time, have proof sufficient to convince those doubters ''who are from Missouri.'' I had just reasoned it out that as vitamines seem to be in practically all natural foods they must be in honey. Nature does not make blunders of that sort, and I had asked several eminent chemists and dietitians, and they assured me there could be no doubt of the fact. Further evidence was the large amount of unsolicited testimony as to the value of honey as a food, particularly as a sweet beneficial to invalids and children.

AT last we have proof that **there is a moderate amount of the fat-soluble vitamine, called Fat-soluble A in comb honey,** and it is probable that there are small amounts of the vitamine, Water-soluble B in all honeys, but no anti-scorbutic vitamine.

The Fat-soluble vitamine, you will recall, is the one which is often alluded to as ''the growth principle,'' and which is contained in abundance in the fat of milk, the yolk of eggs, and in green, leafy vegetables. Incidentally, McCollum, of Johns Hopkins University, who has conducted so much research along this line, considers Fat-soluble A of the utmost importance in the diet. Being much less widely distributed in foods than Water-soluble B there is much more danger of a deficiency of it in the diet.

Many of you may not know that the presence of these tiny dietary essentials, generally termed vitamines, is not determined by chemical analysis. For that reason they are frequently alluded to as unidentified dietary essentials, and their presence or absence in foods is determined by a long and expensive series of feeding experiments upon animals, the animals often being white rats or guinea pigs. The diet of these little animals is somewhat similar to that of human beings, and their natural span of life is short enough to permit of conclusive experiments being conducted in a comparatively short time.

The man who conducted the feeding experiments to determine the presence of vitamines in honey this past year is Philip B. Hawk, Ph. D. of Jefferson Medical College, Philadelphia. For years he has been experimenting upon the digestibility of various foods by a new process of watching the digestion at different stages in human beings, and he has also been doing research work on vitamines. He is a contributor to scientific journals and is very well known to the general public for his contributions to the ''Ladies' Home Journal.'' Even if you do not happen to remember his name you will doubtless recall the series of articles he wrote several years ago on the digestibility of certain foods, and more recently for his article on vitamines. The results of his experiments with honey will be published in some scientific journal, a notice of which will appear in Gleanings at a later date.

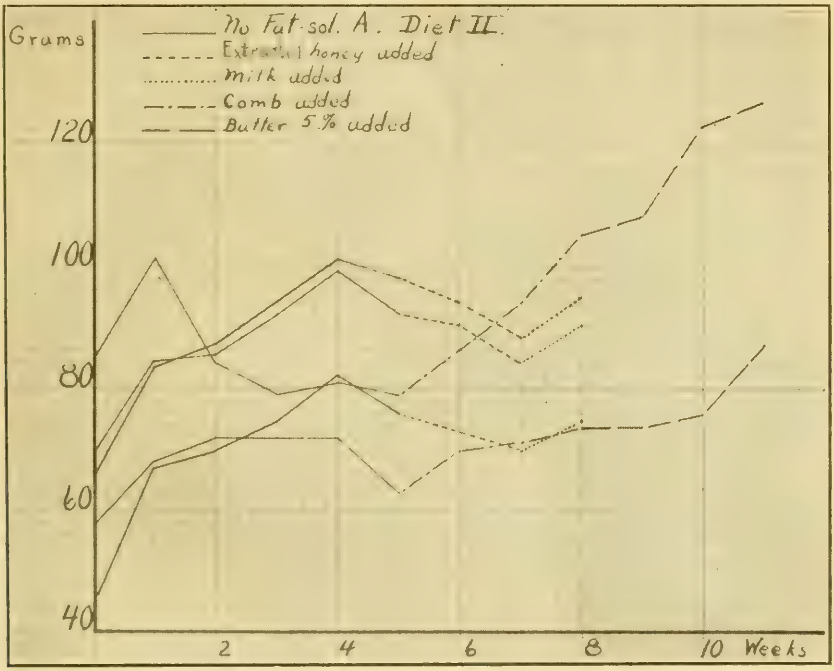
WHITE rats were the animals chosen for the experiments to determine whether there were present in honey the vitamines Water-soluble B and Fat-soluble A. The first work was done in testing honey for the former. Rats were selected and divided into three groups, the rats from each litter being distributed to make the groups as uniform as possible. These were kept in sanitary cages with an abundance of water. One group was fed a diet known from previous experience to contain all the essential nutrients except the Water-soluble B vitamine, in which it was deficient. Another group was fed the same diet except that a blended, extracted honey was added to it. Still another group was fed the same diet with the exception of extracted clover honey added.

These two latter diets were known to contain no water-soluble vitamines except such as might be contained in the honey. The individual rats in these groups were carefully weighed each week and records kept of their weights.

At the end of four weeks the diets were changed so that the rats of group 1, which had received no honey, were subdivided into two groups, half of which received blended honey and the other half white-clover honey. The rats of the other two groups, which had been receiving honey, now had this replaced by a starch.

After another two weeks another change in diet was made, which consisted in replacing all these previous food mixtures by milk, which was known to be adequate for growth and to contain Water-soluble B. This was to show that failure to grow had been due to a dietary deficiency and not to disease or other accidental causes.

Now as to results: None of the rats on these three diets first mentioned was able to thrive and grow in a normal manner, and therefore all three diets were deficient in the Water-soluble vitamine. Apparently, therefore, neither the blended honey nor the white-clover honey contained sufficient Water-soluble B to permit normal growth when they were present in the diet, nor to permit the resumption of normal growth when they were added to a diet containing none of this vitamine.



However, while the addition of extracted honey to the diet did not permit normal growth it did slightly increase the growth, so that at the end of five weeks, in the case of one group there was a difference of 9 grams between the ''starch rats'' and the ''honey rats;'' in the other group the difference between the ''starch rats'' and the ''honey rats'' was 17 grams in favor of the honey.

To quote Professor Hawk's own words, ''The differences were not great enough to be entirely conclusive, but may most reasonably be considered to indicate the slightly greater efficiency of honey for growth, due to the presence of small amounts of the water-soluble vitamine.''

THE experiments to determine the presence of the Fat-soluble A vitamine were conducted in much the same manner, except that in this case comb honey was also used in the feeding experiments. Now, please, everyone pay attention to what I am about to quote from Prof. Hawk, for it should interest every bee and honey lover in the country. He says: ''Of the eight rats fed comb honey, all but one showed a cessation of decline and distinct gains in weight. The one rat was apparently beyond recovery by dietary change. In fact, all the rats given comb honey were already showing indications of the dietary deficiency. Comb honey showed a resumption of growth in these animals, **indicating the presence of distinct amounts of Fat-soluble A.**

''For comparison the comb honey diet was followed by one containing butter in amounts of 5 to 10 per cent. Butter is known to be rich in the fat-soluble vitamine. Hence, the fact that the rats grew about as well on comb honey as where 5 per cent of butter was added indicates that comb honey contains a moderate amount of fat-soluble vitamine, and that the comb is relatively rich.''

These rats, like the first groups, were later fed milk to show that any failure to grow had been solely due to a dietary deficiency.

Extracted honey, added to a diet known to be deficient in Fat-soluble A, showed a slight gain in weight in some of the rats, but hardly enough to be conclusive. However, Prof. Hawk says, ''That a minimal amount of Fat-soluble A may be present in extracted honey would be indicated further by the fact that our data show it to be present in comb honey.''

NOW, please turn to the accompanying diagram, study it carefully and see if it isn't enough to make a colony of bees buzz with pride. I shall have to admit that I selected what I thought the finest diagram

(Continued on page 566.)

Beekeeping as a Side Line

Grace Allen

SINCE the appearance of the August Sideline, I have decided to say a word or two about the little requeening job referred to on page 474. At the time of writing the August copy, my mind was more especially on the swarm with its several queens, and the sight of those other queens running out of the cells as fast as we cut them out. So, tho I thought more about going into detail about the system, or lack of it as you will, used in the requeening experiment, I didn't do it at that time. Subsequent comment has decided me to tell how we came to do just what we did. First, tho, let me quote briefly from last month's account of the swarm: "Fourteen days before (the swarm issued), we had found some fine cells in a good colony. Interested to see what success we would have by such a short-cut method of requeening, we dequeened six poor colonies, giving each one comb with a sealed cell, instead of giving the cell in a cell-protector as we should have done. Personal matters and a few days of rain kept me from examining them later. This Sunday a swarm came from one of these. As might have been expected, we found they had torn down the cell given them, and built a multitude of their own."

I might add here that I did not examine the five remaining colonies until too late to know positively whether the cells given them were accepted or torn down, but from the quantity of brood found in two of them, I felt it likely, or at least probable, that the new laying queen had emerged from the cell given them. At any rate, I really regret the words, "as might have been expected," for while the result is exactly what my own judgment did expect and what I think had happened in my more beginner days and what I know Mr. Edward Hassinger, Jr., of Greenville, Wisc., would have expected, it is not, if I properly read and interpret page 279, of May Gleanings, what that eminent queen-breeder, Mr. Mell Pritchard, would have expected, or what he has usually had happen to him. And I have such respect for Mr. Pritchard's experience and such confidence in his judgment that I'm just a little sorry that the verdict, "as might have been expected," was thus tossed out on my Sideline page.

Briefly reviewing pages 278-9, May Gleanings, here are the Hassinger and Pritchard judgments on the matter of requeening with a cell of brood and bees and an unprotected cell. About a week before the end of his main flow Mr. Hassinger kills all queens that are mismated or poor honey-gatherers, and also all two-year-old queens, altho they're good queens or they'd have been killed the year before. They are disposed of for age only. Then after eight or nine days, he destroys all queen-cells in the inferior colonies, requeening each one with a comb of brood containing a sealed queen-cell, and adhering bees, from these queenless good colonies. Mr. Pritchard, commenting, commends Mr. Hassinger's weeding-out custom, but objects to the long period of queenlessness brought about by allowing the poor colonies to build cells to be destroyed before being requeened. He urges that these queens should not be killed until the cells are ready for them in the good colonies, adding, "Mr. Hassinger says, however, that if he were to kill the queens in the other colonies and at the same time give them a frame with unprotected cells, 50 per cent of his colonies would destroy all such cells and raise cells from their own brood. His experience does not agree with mine."

While this surprised me, I have, as mentioned above, such great respect for Mr. Pritchard's experience and judgment that when one day we found those fine-looking cells in a particularly good colony, I remembered his advice and followed it, a bit against my own judgment, to be sure, but knowing how much more he knew than I did, and ardently hoping that my experience might agree with his. It did not. It agreed with Mr. Hassinger's. But if my Sideline comment sounds saucy, Mr. Pritchard—well, I was surprised myself when I read it in print, and sorry, too—"as might have been expected!"

But there's another point brought out in that same Hassinger-Pritchard requeening discussion that interests me. This time I'm taking issue from theory only, not from even the slightest first-hand knowledge. And I'm wondering if anyone else has experimented or observed enough to speak from experience. Mr. Pritchard objects (and of course he is not alone in the view) to queens reared under the queenless impulse. Let me quote again: "It is well known that colonies that have been made queenless, in their haste to improve the time in which queen-cells can be started, often start some of their cells with larvae two or three days old, this being fully half of the feeding period of the larvae. Queens reared in this way could not be expected to equal those which have been fed as queens for the entire time. Yet these cells, started from two- or three-day-old larvae having 30 or 40 hours start of the others, are the first to hatch. And since the first queen out destroys all the others, the queen remaining in the hive is likely to be lacking in quality."

I realize this is a common belief, resting on the assumption that for its first two or three days the larva will have been fed as a worker instead of as a queen larva. Yet there is another very common belief, that the worker larvae are fed for the first few days on practically the same rich nitrogenous food as the queen larvae, a lighter or coarser food being substituted the third or fourth day. If this be true, it would seem to remove all objections to the queenless method of getting cells. If, however, it's one of the bits of knowledge that justify the popular wonder whether all the things we know are true, it's a different matter. If this common belief is based only on von Planta's study of the chemical composition of the food of bee larvae, it may, according to Dr. Phillips, be quite incorrect, for he (Dr. Phillips) holds that von Planta's conclusions are not to be considered final until verified by more modern methods of research and analysis. But so long as we accept the prevalent view that worker and queen larvae are fed alike for two or three days, we would seem justified in having faith in the quality of queens reared under the queenless impulse, unless they have been actually proved inferior. Even Mr. Pritchard, with his long experience, makes no mention of having thus tested them out; he merely feels justified in concluding that her qualities will be deficient.

Here where I am writing, outdoors right among the bees, there is a little pile of wreckage lying just to my left. It is the last of Dr. Allen's keg. The class in beekeeping at Peabody College did so strenuously desire to see some bees transferred, and to take part in the job, that Mr. Allen came to our rescue, waving us gallantly toward his keg. "Do your worst," quoth he. We did it. After the flow was practically all over and gone, after the honey crop had been gathered, we split the keg apart and cut out the best of the brood to tie into empty frames for the hive they were being transferred to. Knowing we were violating all authoritative instructions, I kept reminding the class that the proper time to transfer bees was in the spring or at least very early in the flow, not in mid-July with the flow a thing of the past. But we had not a bit of trouble. The bees were gentle and there was no robbing. Of course we had drawn combs to give them, to augment the brood cut out and tied in, so they had no foundation to draw as would be the case with a beginner. When we looked in two days later, the cut-out honey given them above was all taken down, and, unless the fall flow fails quite utterly, they will need no more help.

Referring again to my immediate surroundings, just to my right are two small piles of brick, with a little heap of ashes between. Telltale evidence, is it not? What merrry breakfasts they have been, cooked out here in the early mornings while the rest of the world was asleep. I do feel sorry for people who live forever in a set routine, like squirrels in wire cages. Also for those who think variety and change are to be secured only by the spending of much money, and who, lacking that, are unhappy because of the things they cannot do. Happy the man who keeps bees for a sideline and finds his recreation in gay and simple ways. Have you never tossed some sliced bacon or tender lamb chops into a basket, with a thermos bottle of coffee, if you are a coffeeite, a loaf of bread for toast, a bit of butter, an egg or two, and some fruit, and run out to your beeyard or some friendly hill and there toasted and broiled and eaten over an open fire, with day coming out of the east and bees beginning to leave the hives? Just try it.

Most sideliners are veil devotees. But occasionally we come across one whose ambition seems to be to work quite unprotected, often because some old beekeeper who never opened his hives except to "rob" them says he never wore anything for protection —didn't know anything about veils. Personally I have no such ambitions, nor do I advise them. Better be sufficiently protected for any emergency. Most professional beekeepers work occasionally without veils, but beginners and sideline beekeepers will do well to wear them. Of course, a quiet little nucleus can be opened with far less chance of a sting than a full, strong, zipping colony, so anyone wanting to experiment with his own steadiness should choose his hive wisely. Going without gloves is different. Stings on the hands and arms seem less serious than those on the face or ears or eyes. Besides, one acquires a certain deftness with bare fingers that seems almost unattainable with gloves. The answer to that argument, tho, is that he'll work a little more slowly and carefully, ungloved, and so take longer to do his work. If I remember aright, even Mr. Doolittle admitted that.

[There probably is some misunderstanding as to what is meant by "unprotected" cells. Our understanding of this is a frame of brood with queen-cell and adhering bees but no wire cell-protector. If Mr. Hassinger brushes all the bees from his frames then perhaps 50 per cent of the queen-cells would be destroyed. The bees which would naturally adhere to such a comb are nearly if not quite as much protection to a queen-cell as would be a spiral cell-protector. In your discussion you failed to explain whether or not you left the bees on the frame with the queen-cell.

In regard to the second point under discussion, we believe, (even if we can not bring proof) that there is a difference in the quality of the food fed to worker larvae and that fed to queen larvae; and we know that there is a vast difference in the quantity of food in the two cases. Day-old larvae in worker-cells, especially next to the bottom of the combs, are usually so destitute of food that, when grafting, it is difficult to remove them without their being injured, yet along the bottom-bars is the very place where most of the natural queen-cells are started.—Mell Pritchard.]

FROM NORTH, EAST, WEST AND SOUTH

In Southern California.—The weather for the past month has been exceptionally hot—in fact, records show that it was the hottest July in the past twenty years. Consequently practically all unirrigated vegetation has dried up, and the flow of honey for this season is pretty well over.

Most of the honey crop of southern California is in the warehouse. All in all, it has been one of our most satisfactory seasons. The yield has varied greatly in different localities. Some have had light yields, but the majority of the black-sage and wild-buckwheat ranges have given a big crop. Thirty-seven tons from two hundred and eighty colonies, spring count, is about the best your correspondent has heard of. The bean honey is now being stored, and prospects are good for a normal yield from that source. The wild buckwheat still yields a little in the higher altitudes and more favored localities. The blue curl is just beginning to bloom. It is very uncertain in its growth, as some places will show a heavy growth one year and little or none the next. This drought plant, as we call it, often produces considerable honey and sometimes gives a flow of nectar until the fall rains come.

Disastrous fires have already this year destroyed several thousands of acres of bee pasturage in southern California. Several apiaries in this district were entirely destroyed. A remark by one of the neighbors of a fellow-beekeeper, "No number of fire-fighters could have saved the bees, as the grass and weeds were as high as the hives," gives an idea of the carelessness of some apiarists. To look at some of our bee ranges, one would scarcely realize the rapidity with which a fire will lay waste the entire section. A clean apiary is a safe apiary if a fire is in the neighborhood.

County inspectors report the bee diseases as well under control. In many yards where both the American and the European foul brood have been prevalent for years, inspectors find that both kinds have been completely eradicated. Queenless colonies and drone-laying queens seem to be more prevalent this year than usual. With the advent of warm weather and the nearing of the end of the flow of nectar, this is often the case, and it is always well to keep a careful watch of each colony for a few weeks after the close of the honey season.

We have been putting on queen-excluders, as we consider our crop made and the tendency to swarm practically past. By putting on excluders now, we feel that the colony will store a greater amount of honey in the lower story. This will put the colony in better condition for winter. In talking with a prominent beekeeper a few days ago, he said: "I have been taking off my excluders while you have been putting yours on. You must have some reason for this." A third man who was present works with excluders on all of the time. And so it goes—each one does according to his own ideas, and as he feels results will be best for him. Our reason for putting on the excluders now is that, during the fall and winter, we gradually take off the empty combs. By early spring we have all of them safely packed away from the moths. If a colony should develop disease later, these combs do not need to be destroyed. The combs which contain honey are put in supers and placed on the strongest colonies.

Corona, Calif. L. L. Andrews.

* * *

In Minnesota.—This has been a good year for Minnesota beekeepers, especially for those who had their bees in proper condition to take advantage of the abundant flow of nectar. The frequent rains during, May, June, and the forepart of July brought about a heavy growth of the white and the alsike clovers. The bees wintered very poorly in Minnesota last winter, and the month of April was cold and windy. As a consequence, bees were not in the best of condition when the flow began; but those colonies that had plenty of honey in the early spring built up very rapidly and were able to gather considerable before the clover flow was over. The basswood flow was very good, and by that time the colonies were in fine condition, and according to all reports received the yield from basswood has been heavy. The lack of rain for the past three or four weeks would seem to indicate that the fall flow would be light, especially in sections where the soil is not heavy. But in spite of the large loss of colonies last winter and the discouraging conditions in the spring, I am inclined to think that the Minnesota crop will be larger than last year.

No doubt, tons of honey were lost this year in this State for no other reason than that beekeepers failed to get their colonies into proper shape for the winter. The writer received appeals last fall from all parts of the State for assistance in securing sugar when it was already too late to do anything in the matter. Many extracted too closely and then failed to get the sugar they had depended on. Let us not forget the experience of last winter. If you haven't saved combs of the proper kind of honey for the bees to winter on, then you had better buy the necessary amount of sugar immediately, for it is better to be safe than sorry. Better feed some sugar anyway. I have carefully listened to the experiences of beekeepers in different parts of the State and have found that where colonies had young queens last fall and had been fed from 10 to 15 pounds of granulated sugar syrup in addition to the honey in the hive, the bees wintered well whether the temperature in the cellar was 38 degrees or 50 degrees. So, be sure that you have young bees and plenty of good stores in the hive, and then do the best you can to keep the temperature not lower than 42 nor higher than 50 degrees. Personally, I think 45 degrees is a good mark to aim for. Now it is practically within the power of every beekeeper to have young bees and plenty of good stores in the hive, but the cellar problem is not so easily settled in Minnesota. With certain general principles in mind, I believe that each individual will have to work out the problem according to his own local conditions.

It is a difficult matter to say anything very definite about prices of honey. The dealers are holding off, and only those who are in a hurry for their money are selling to the wholesalers. The general feeling seems to be that prices will be about the same as last year. Chas. D. Blaker.

Minneapolis, Minn.

In Michigan.—On July 28 and 29, the State Beekeepers' Association held its annual summer meeting at Boyne City. One of the best possible programs was presented. Among the out-of-the-State speakers were E. R. Root of Gleanings, C. P. Dadant of the American Bee Journal, H. L. McMurry, State Inspector of Wisconsin, and W. D. Achord, queen-breeder of Alabama. It was decided to hold the next meeting at Alpena.

A stockholders' meeting of the Michigan Honey Producers' Exchange was held during the meeting at Boyne City, and it was decided to continue to solicit memberships in the Exchange. Some stock is yet available. Incorporation papers will not be filed until at least $5,000 worth of stock has been sold. The next stockholders' meeting will be held in the Administration building on the Detroit State fair grounds at 2 p. m. on Sept. 9.

Foul-brood conditions show a decided improvement over last year and the preceding years. Because of the steady honey flow during the season and because of the large amount of Italianizing that has been done in recent years, European foul brood has been a serious factor in but few communities. American foul brood is, of course, widely scattered over the State. The elimination of the small beekeepers by winter losses and the passing of the box hives are, however, making the matter of control easier than before. Next spring we will start the county clean up which was anticipated in the quarantine law which was passed by the last legislature. It is planned to start in Cheboygan and Huron counties and extend the county clean-up into the adjacent territory as fast as possible. Local inspectors in the various counties have been cleaning up their territory township by township, and next season should show quite a number of counties free from American foul brood.

The crop of white honey is being extracted at this time. The honey flow started at about the normal time, except in a few areas where the flow was from one to four weeks late. In general, the yield per colony is very satisfactory. In this there are some exceptional areas also. The southern part of the State has had the heaviest white honey flow in years. Yields of from 150 to 200 pounds per colony for the run of the yard are being reported. This is very exceptional, inasmuch as the bees were very weak in the spring. When spring weather really opened, a large part of the colonies were only two- and three-frame nuclei. Central and northern Michigan have not had as heavy a crop as the southern part. Rains and cold weather in these parts interfered with the secretion and gathering of the nectar. This will be made up to a certain extent by the flow from goldenrod and other fall flowers. Goldenrod has made a heavy growth and gives promise of a good crop in those districts where it is found. There is very little comb honey being produced this year. A large part of the comb-honey producers found their bees so weak that they immediately prepared to extract this year. Comb honey will therefore be scarce in Michigan and should command a high price. The honey market is becoming quite active again. Many producers have received attractive offers for their entire crops. The general tendency is to hold until the market becomes more settled and a somewhat definite price established. In connection with the above statement, it must be remembered that a large part of the bees of the State died out last winter or this spring. Possibly 60 per cent of all the bees died. Therefore, even with an exceptionally heavy crop in some parts, the Michigan crop will not total as many tons as in previous years. The loss has been made up to a considerable extent by the professional beekeepers, but the farmer beekeepers have not made up the losses. This leaves the bulk of the bees for next year's crop in the hands of the large producers.

East Lansing, Mich. B. F. Kindig.

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In Florida.—I have not been keeping up with conditions in other parts of the State this year, but believe the season has been very poor. We were fortunate here in obtaining a fair crop from orange, which sold readily at 20 cents f. o. b. here. From gallberry, basswood, and redbay there was a small surplus. This honey has a peculiar flavor, tasting very much like maple syrup, and I am keeping two barrels of it for my own use, as it would be sure to be suspected of adulteration if placed on the market. Saw palmetto was a failure.

Cabbage palmetto, tho putting out the biggest bloom for years, has yielded nothing so far, and the heaviest of the bloom has blighted or is over. Partridge pea is more abundant than usual, but is not producing much, and will give only a small crop. Prospects are good for a fall flow.

Apopka, Fla. Harry Hewitt.

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In Southern Indiana. We are having the driest time ever experienced—even drier than ever dreamed of by the promoters of the Bone-Dry Amendment. Beekeepers are all hoping for at least a little near-rain. This has not been considered a good locality for the production of honey; but, since the farmers are learning the value of sweet clover, things are looking up a bit in the bee line. This year we had one of the heaviest flows from sweet clover ever experienced in this section; but, as the weather turned very hot and dry, the sweet-clover flow lasted only about two weeks; so many colonies did no more than fill the brood-nest. However, the colonies that were in first-class shape, with a large hive well-filled with brood and boiling over with bees just as this flow opened, gave a surplus of a hundred pounds or more per colony. In this connection, I wish to state that I believe very few beekeepers fully realize the importance of having the "Storing Instinct Dominant," as Mr. Demuth puts it. Nothing will make bees speed up on food production like having plenty of fully drawn comb right next to the brood-nest. I had a marked illustration of this during this short flow. A number of cell-building colonies were getting their hives filled up. They were not crowded, as they had empty combs in the super. However, I believed they could work a little faster if they had more room; so I gave them an extra Jumbo hive-body each with fully drawn combs. I also removed from the brood-nest the frames that were filled with honey, replacing them with empty combs. Next day it was really laughable to see those bees hustle. It looked like a hundred rapid-fire guns shooting bees in and out of the entrance. It seemed almost incredible that they could pass each other at such high speed without having a head-on collision. At any rate it made one feel that they ought to take out a little accident insurance. In five days' time they had the Jumbo hive-body well filled with honey.

Smartweed is our best honey plant here, but the dry weather has knocked it out completely. We have one plant, however, that thrives best in hot dry weather. It is known by several names, dry weather vine, blue vine, and climbing milkweed. As it does not yield in wet seasons that are favorable to smartweed, we are reasonably certain of at least a little fall honey for the bees' winter stores. It grows in the cornfields along the White River, the Wabash, and the Ohio. Last Sunday we "flivvered" up to historic Ft. Knox on the Wabash, and I noticed that the cornstalks were fairly loaded with this dry weather vine, and between the rows on the ground it formed in places a regular carpet. This field had been well cultivated; but, as the roots of the plant go down several feet into the ground, the cultivator merely cuts off the tops of the plant, and it soon comes on again. I do not know how this looked to the corn-grower, but to a beekeeper it was a most beautiful piece of scenery. The quality of this honey is of the very finest, in my judgment comparing favorably with the famous California sage or star thistle honey. Some have reported that this honey sours quickly. I believe this is due to one of two causes, either it is extracted too soon or it is mixed with the wild cucumber. If the dry weather vine honey is allowed to become thoroly ripened, it will not sour and is of heavy body so that it will pour out of a tin can very slowly, even in hot weather. One party reports to me that he had some so thick that he could not extract it.

This dry weather has given a body to the sweet-clover honey and the quality is exceptionally good. Good demand at 40 cents per section for comb honey.

Vincennes, Ind. Jay Smith.

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In Texas.—The general condition of the honey plants has changed for the better. This does not mean that the honey flow is increasing, but it does mean that all over the State there is a normal flow. The horsemint has just finished a prolonged and productive season; and, in many sections, the mesquite is giving a summer flow. All over the State, where cotton is nectar producing, the bees are storing honey. In the greater part of Texas, there are a few weeks in midsummer when there are but few plants in bloom. This period occurred early this year, as already the broomweed, the bitterweed, the frost plant, the asters, and the goldenrods give promise of a heavy yield. Como, the shrub that gives a honey flow in October and November in southwest Texas, surprised the oldest beemen by blooming and giving a honey flow in the middle of July.

This year will be long remembered by beekeepers as one in which high averages were reached. One man reports 100 pounds per colony from 900 stands. One yard of 56 stands produced 176 pounds per colony. Many higher averages have been reported, but we know that the above were properly weighed and counted. If the remainder of the season is normal, there will be another extraction from the above hives.

The larger proportion of the honey in

FROM NORTH, EAST, WEST AND SOUTH

Texas is extracted soon after it is deposited. This practice is brought about by a desire to get along without a large supply of supers and to get the honey on the market at once. With all its good points, this method causes the production of much poor honey, brought about by the extraction of thin, partly evaporated nectar. This is especially true in the locations where horsemint is dominant. The other and most vital drawback is the glutting of the market by the heavy supply of new honey offered. This year, even tho enormous quantities of honey were produced, it was sold early. In fact, but little of this year's crop is now in the beekeeper's hands. The price has held its own, thanks to the Honey Producers' Association.

There never was a time when there was greater activity among the beemen in Texas. This movement is not a boom caused by a lot of new men rushing into the business on account of two successful years of honey production, but it is brought about by the constant demand for honey, queens, and combless-package bees. A large number of men, already well known as sellers of bees and bee products, are planning to double their production next season. Likewise, many small beekeepers have made an increase and will have both honey and live bees for sale in quantities. To keep apace with the demand for bee fixtures, the dealers in standard fixtures have had to increase their facilities for distribution and a number of branch houses have been established. The hopeful part of this activity is that it is backed by capital and experience.

College Station, Tex. H. B. Parks.

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In North Carolina.

The bees are now enjoying a light flow from a variety of midsummer nectar yielding plants, especially in the eastern part of the State, where there is rarely an absolute dearth of honey-producing flowers during spring, summer, or autumn.

Reports from every section of the State show one of the very best seasons beekeepers have had in a decade, and the fine progress that has been made in advancing methods and equipment in beekeeping assures far and away the biggest honey crop that North Carolina has ever had. Specific reports as to yields are not yet available as a general thing, but yields of 100 to 200 pounds for colonies in normal condition are general. There are cases, under exceptional conditions, where a single colony has gathered 300 pounds and more.

Beekeepers in the coastal section of the State, where the gallberry is a fruitful source of a fine quality of honey, had the disadvantage of having this bloom badly injured by severe cold and light frost in the early stages of the development of the flora and this reduced considerably their crop, which, was, nevertheless, very satisfactory in the matter of product.

Prices are hardly established here yet. Twenty to 22½ cents per pound, where the producer's whole crop is sold, seem to be the prevailing prices. Of course, in small sales and sales of extra-fancy product in lesser quantities, considerably higher prices are the rule—from 35 to 50 cents for fancy comb and 30 cents and upward for extracted. Much honey is still put on the market in unattractive and unsanitary packages, and these bring very low prices that make the sale of the better prepared honey at the necessarily higher prices somewhat difficult, and will continue to do so, until the trade comes to appreciate the extra desirability of the more carefully handled product. Especially is this true of section comb honey, the great bulk of which is still put on the market unprotected by cardboard cartons or otherwise from dust and microbe contamination so inevitable where comb is handled and exposed for sale in this condition.

Numbers of beekeepers who have practiced swarm control and prevented any form of increase during the honey flows are now preparing to divide their stronger colonies, providing new and most prolific queens, with a view to preparing to increase greatly their 1921 yield of honey. The great majority, however, will operate their bees right thru the fall flora for honey, and possibly these will gather a third more honey before late November frosts close the season, and force the bees into winter status.

Beekeepers in this State are being urged by the officers of the State and Federal beekeepers' extension service to gather at the A. & E. College, Raleigh, August 23-28, for a beekeepers' extension school, to be in progress there under direction of Entomologist Z. P. Metcalf. The entire program is full of the most interesting and vital features for the aggressive beekeeper. For instance, the session for Aug. 27 has for special subjects: "Behavior of Bees in Swarming," "Swarm Control," "Beekeeping Regions in North Carolina," and "Characteristics of American and European Foul Brood." These topics are to be treated by experts in pointed and brief presentations of their respective subjects. The other two days are to be crowded with features just as profitable. Special effort is being made to get together the biggest gathering of beekeepers North Carolina has yet had.

Wilmington, N. C. W. J. Martin.

HEADS OF GRAIN FROM DIFFERENT FIELDS

How Bees Steer. Dr. Stellwaag in the "Biologisches Centralblatt" has given so interesting a theory concerning the flight of bees that it has recently been quoted in "The Scientific American," and also in "The Literary Digest." His experiments and observations would seem to show that instead of steering by shifting its ballast, by throwing its abdomen or wing covers from side to side as formerly supposed, bees steer by varying the wing pressure, which is accomplished by changing the angle and force of the wing beats, and thus operating the wings as stabilizing planes. E. R. Root.

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Soldiers Turned to Beekeepers. The pioneer element is so strong today even among western men that it is not surprising to find many financial strings on their bows. Clyde Crosser, a ranchman near Lander, Wyo., found his blacksmith shop so profitable that he hired a man to look after his ranch, and when an old Colorado beeman came to be his neighbor, Mr. Crosser and his wife became so interested in bees that they finished their first bee year with 24 colonies. These did not winter well, and Mr. Crosser resolved that he would find out at the first opportunity just what mistakes he had made and how to rectify them. He had to wait until after the war, however, when he had an opportunity to study bee culture at the Utah Agricultural College with other vocational students who had been wounded or disabled in the army.

A soldier blacksmith and his tongs for handling frames.

When the class was discussing hive tools one day he displayed some tongs which he had invented for handling brood-frames. A blacksmith naturally wants to handle everything with tongs whether it is red-hot iron or seething brood-frames, but these frame tongs excited the admiration of many experienced beekeepers. The jaws of the tongs are drawn out thin, the ends turned over square and small teeth filed in them so as to clutch firmly into the side of the brood-frame when it is being lifted. One handle end has a claw for drawing nails, while the other handle end has a broad chisel bit or screw-driver. It is a tool with many uses.

The bee class that Mr. Crosser is attending is the second that the Utah State College is offering to disabled army men. Many of the men who in the winter took the first course, which was mainly theory, are now doing practical apprentice work with the beemen of the inter-mountain country. Thus Edward H. Ashman of Salt Lake City is at Cedar City among the 3000 colonies of the Southern Bee & Honey Company. Joseph C. Christiansen, also of Salt Lake, is with Thomas Chantry, at Wellington, in Carbon County, Utah. Mr. Chantry, who has had 45 years' experience, is one of the oldest of Utah beekeepers. He has also been secretary of the Utah Beekeepers' Association. A third man from Salt Lake, Wayne C. Beane, is with the Idaho Falls branch of the Superior Honey Company. These three city boys were absolutely without experience in handling bees when they came to college for their vocational course, but are showing much aptitude and ability in their new vocation. Another boy from their bee class is Ira C. Sax of Wendell, Idaho, who is now in Myton in Duchesne County, one of the best alfalfa seed districts in Utah. Soldiering and beekeeping are as far apart as the poles, but, all the same, the war will soon count many beemen among its most noteworthy by-products.

Logan, Utah. Frank R. Arnold.

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Syrup Fed on Top of Stores. Last year the bees came thru in as bad shape here as one could imagine. The winter loss was fully 65 per cent among extracted-honey producers, while comb-honey producers suffered only a slight loss. The main cause seemed to be poor stores gathered too late even to ripen before cold weather. Extracted-honey producers, including myself, extracted their honey before the season was quite finished and what there was left to be gathered went into the brood-nest "green" just as cold winter came on (in October). Sugar was scarce and impossible to get. I fed six of my colonies five to ten pounds of sugar syrup in spite of it, and they were the only ones of 53 that came out in good shape. The others had merely a handful or no bees in spite of a good, warm, dry cellar. Robert G. Norberg.

Cambridge, Minn.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Fireweed Location in Northwest. This is an ideal fireweed range, on logged-off lands lying in Pacific County, Wash. The yard is that of Messrs. Julian and Bush containing about 125 colonies. The picture shows a corner of the yard and its sheltered location. The apiary is well watered, and the owners harvest good yields and market the same within the State. They practice jacketless outdoor wintering and largely in single-story 8-frame hives. They found stores lower last spring than any previous one, but they had been foresighted enough to retain sufficient honey in combs for feeding if necessary.

I am a "small scale," "long range" bee keeper, but my "long suit" is bee-hunting as a diversion and sport. Since becoming an addict 3½ years ago, I have been a close student of bee culture, beginning with Quinby and following on down the line. During this time I have located about 30 bee-trees.

Raymond, Wash. M. C. Osborne.

A good location for a fireweed honey crop on logged-off land in the Northwest.

◆

Getting Down to Business. You Easterners say that out in California all they have to do is to take out a load of supers, put them on; when full, extract them; and in the fall put a twenty-pound stone on, and they are ready for winter, and the bees will work for you and board themselves; and that, if you take all the honey off, they do not seem to care, but will gather some more to live on for winter. Yes, that is what I expected when I came, 15 years ago, from Oakland County, Mich. Did I find it so? Not by a long shot. I was a beekeeper in Michigan—one who could get the honey with the next one; but when I came out here to Poseyland my beekeeping did not work. I had to learn all over again, and that was some job too, believe me. If you do not believe this, ask E. R. Root, editor of this journal, who was out here last winter. Didn't he tell you the eastern beekeeper has an easier time than we do out here? He was right when he said so.

Owing to a hot wave, 20 colonies melted down for me in June, 1917. Foul brood? We have it out here—four kinds, and all look alike to a tenderfoot. Stings? Oh, no! I got only 36 one day with a bee-tight suit on. Skunks? Yes, we have them. One man got nine one night in his beeyard. Ants? Yes, four kinds. They drive a whole swarm out of the hive. Bees stolen? Yes, they leave us the hives. Sometimes and most generally the wheelbarrow, house, and all go. All they left for one poor man was the auto truck. Cheap bees? Fifteen dollars a swarm. Do you call that cheap? Wintering problem? Well, yes, I guess that is what the editor of Gleanings called it. Forty pounds of good honey at 20 cents—$8.00, and a good hive packed; requeen every year; three to five dry years on a stretch out of every six or seven years. This year I got only 20 pounds per colony, spring count. Then they have the nerve to ship bees here by the carload.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Yes, we get a honey crop here once in a while, but we earn it. Now, do not get confused and come out here with the idea that you can buy 300 colonies, set them in an orange grove, and that all you have to do is to go to every hive and rap at the entrance and they will hand you out $20.00 each. They might give you 20 each, but it will not be dollars. I got on an average only three and a half little, measly dollars this year per hive, and I was offered $12.00 a hive for my bees in the spring. The most of us here are here to stay, as our way here will not do in other States; so if you can get a fair crop in your own State, I believe you better not come here to keep bees, as it is too uncertain. I sometimes wish I had all my bees and all my outfit that are now here moved back to Michigan; but, as it is, I am about to carry on a side line to fall back on in a poor year.

After the above explanation, I hope that you will no longer think that dollars grow on trees out here. Chas. S. Kinzie.

Arlington, Calif.

* * *

That New Fumigant for Bee Moth. A short time ago a correspondent asked why we did not recommend the use of carbon tetrachloride as a fumigant against wax moths instead of carbon bisulphide which is so explosive and therefore dangerous. The Editor of Gleanings referred the suggestion to the Bureau of Entomology at Washington. The following is the reply received from C. R. Watson of the Bureau:

"Pursuant to the statement I made to you in my letter of the 14th of last November that we were planning to carry out some experiments to determine the value of car

In an Oklahoma apiary. (R. L. Blackwell, Lexington, Okla.)

HEADS OF GRAIN FROM DIFFERENT FIELDS

bon tetrachloride as a substitute for carbon bisulphide as a fumigant against wax moths, I now write to tell you that our experiments so far have been entirely unsuccessful. Hives containing wax moths in all stages of development were tiered up and treated to the fumes of the tetrachloride by exposing a few ounces of the liquid in a pie tin in a covered empty body at the top of the tier. The millers were always observed to leave the lower regions of the enclosed space and collect at the top under the cover, but none were seen to die nor temporarily to be overcome by the fumes.

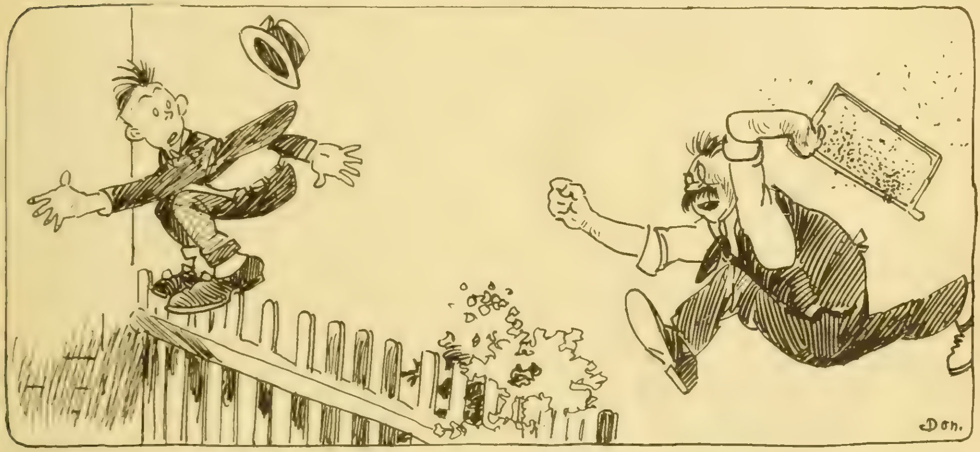
This procedure was then repeated, with the difference that the pie tin containing the tetrachloride was placed upon the upturned face of a hot flatiron, thus vaporizing the chemical rapidly. No moths were found dead after 12 hours, but they had left the lower space and had collected just underneath the cover.

There is no reason to doubt that wax moths could be drowned in the fumes of carbon tetrachloride, provided they could be held in them long enough; but the relatively high boiling point and high molecular weight both predict the difficulty of securing rapid enough evaporation to fill the upper portions of the enclosure before the gas all leaks out thru cracks at the bottom. Experiments so far conducted would lead to the belief that if carbon tetrachloride is ever successfully used as a fumigant it will have to be inside some specially prepared tank or vat which shall prevent loss of fumes by leakage.

I am convinced that the bisulphide is quicker and more positive in action, that it is more simply used, and that it is cheaper.''

The Bee Inspector.—By Bill Mellvir

(With Apologies to Walt Mason.)



A young inspector came around and says to me: ''Now, Bill, I found some brood diseases up the crick; it's all around you good and thick. The pupae in old Jake Smith's hives by thousands daily lose their lives; **Bacillus larvae** eats them raw, which is against our new state law. The larvae at Joe Simpson's place are turning yellow in the face; **Bacillus pluton's** in their craw in violation of the law. To north, to south, to west, to east, these outlaw microbes daily feast. I shall not tolerate such raw infringements on our new bee law. So every doggoned rusty jay who harbors bee-disease a day is sure to get it in the neck for violating law, by heck! I shall compel them to obey the dictates of the law today. Enforcement of the law's the thing to clean the country up by jing.'' I reared right up on my hind feet and said in words aglow with heat: ''Go back, young man, where you came from. Go back so fast your gears will hum. Go back where wise guys chew their cud and scratch their shining pates of wood. Go tell your boss we do not need a lot of law that's gone to seed. If you should force such men as Dick or Tom or Harry—any hick—they'll put out combs rank with disease to feed the germs to neighbor's bees. Or if by chance they don't get mad and put our business to the bad, not knowing how the stuff to cure, they'll spread the microbes swift and sure. Go tell your highbrow boss to keep his police home where they can't peep; then send a teacher down to bring some information on this thing. You can not drive us hicks an inch by yelping law—now that's a cinch! But if they send a teacher bland, we jays will all eat from his hand.''

GLEANED BY ASKING

Iona Fowls

I AM running 32 colonies of bees this summer, and so far I have not been able to secure enough sugar for fall feeding. Would it be possible for me to boil up beets the latter part of September and thus make a syrup and feed this to the bees? Would this syrup in any way injure the bees?

Michigan. O. H. Roth.

Answer.—The sugar made from the beets could be fed the bees in the spring, but would be very bad as winter stores. In case you are not able to obtain the sugar for fall feeding, your best plan will be to reserve enough of the super combs of honey to supply the bees during the winter.

FEEDING OLD HONEY.

Question.—I have on hand about 400 pounds of old honey taken from cappings. This honey is eight or ten years old. Would it be all right to use for feed or do you think it would be injurious, thus killing the bees? It has been stored in open-top 60-pound cans, and is mostly candied.

Idaho. Charles W. Gwin.

Answer.—If you are certain that the honey did not come from diseased colonies, it will be perfectly safe for you to feed this.

BROOD IN SUPERS—EXTRACTING FROM BROOD-CHAMBER.

Questions.—(1) What can be done with supers that have brood in them? I have a ten-frame hive and two supers on it. One of the supers is full of honey and brood. What can be done in such a case? (2) The rest of my hives are 8-frame and they are packed with honey and brood. Would you advise taking some of the honey from the brood-chamber or leave it all to them? Will the brood be damaged when honey is extracted from the brood-chamber?

Kansas. Mrs. S. A. Kleiman.

Answers.—(1) In order to extract the honey without being troubled by the presence of brood, our advice would be to leave the supers on the hive until after the brood has hatched. The honey may then be extracted without trouble. (2) We certainly would not advise extracting from the brood-chamber. Your bees will doubtless need all the stores they have for the coming winter; and it is never advisable to extract from frames that contain any brood, for some of the bees and the larvae are bound to get into the honey—a condition which, of course, you would not tolerate.

KEEPING MOTHS FROM COMBS.

Question.—We will have about 1500 frames that we will have to take off our bee boxes and would like to know the best way to store them for next season to keep out the moth.

Louisiana. Bernard & Bejeaux Apiary.

Answer.—Dr. Miller, in the American Bee Journal, strongly commends the plan of W. S. Pangburn, which is as follows: First scrape all propolis from the top and bottom edges of the supers in order that the bodies may fit tight and thus retain the gas. On top of each set of combs place a cloth about 10 inches square (doubled), and pour a tablespoonful of carbon bisulphide on the cloth and cover with two thicknesses of newspapers to insure a tight joint. Then place another body on top and treat the same way, and continue as high as you wish to go.

SUGAR FOR FALL FEEDING.

Question.—In March Gleanings you are advising buying sugar for next fall feeding. You forget one thing. Beekeepers do not buy sugar, bee robbers do, sometimes.

W. H. H. Stewart.

Illinois.

Answer.—We are interested in your opinion, and yet can hardly agree with you. There are some beekeepers who find that they can winter better with sugar stores than with honey. This is always true if the fall flow is of poor quality. Also, there have been years of failure in some localities when the bees could not store enough for winter. Furthermore, in those cases in which the beekeeper has foul brood to contend with, it is not safe to interchange extracting combs with brood-combs, and therefore in the fall such a beekeeper will sometimes find a part of his colonies without sufficient stores in the brood-chamber; and, since it is not safe for him to feed his honey for fear of thus scattering the disease, he will find it necessary to use sugar syrup.

HEATING HONEY.

Question.—For heating honey after it is bottled I intend to use a sheet-iron plate to be placed in a pan of water with a false bottom. The idea of the false bottom is to keep the jars from actual contact with the heat. How high should the water line be on the jars? Also, what would be the maximum temperature? William Wallin.

Connecticut.

Answer.—A false bottom of screen would be better than a sheet-iron plate, since it would allow free circulation of water at the bottoms of the jars. The false bottom should be about an inch from the bottom of the vessel containing the water, and the water should cover the jars to within an inch of the top. The water may be heated to 180 degrees Fahrenheit, but the honey should not be allowed to become hotter than 160, as otherwise its flavor will be injured.

SWARMS RETURN TO PARENT COLONY.

Question.—One of my colonies has swarmed twice, and both times they left the new hive and returned to the parent colony. How can I remedy this?

Michigan. Mack Hoagland.

Answer.—Colonies sometimes show reluctance to remaining in new hives. If drawn comb is given instead of foundation, they are more inclined to stay. Also, it often helps to turn the parent hive with its entrance in the opposite direction. In some cases it is even necessary to throw a sheet over the hive at the time the colony returns in order that the appearance of the hive may be so changed that the returning bees will not recognize it as their previous home. Of course, if the parent hive is carried some distance from the old stand on which you have the new hive there will be less danger of the bees' entering the wrong hive.

WHY LOSS OF QUEENS IN MATING.

(*Answer by L. L. Andrews.*)

Question.— We have been having an unusual fatality of queens here in southern California at the time of mating the queens. Do you think this loss is due to lizards or to birds? If birds, what kinds do the damage?

California. F. P. Heston.

Answer.—The loss of queens at the time of mating can be accounted for in several ways. This being an unusually cool spring with many cloudy and foggy days, conditions were very unfavorable for queens' flying out and returning. Especially was this the case where there were intermittent hours of sunshine and clouds. Birds, the martins in particular, always get many bees and, of course, are not respecters of queens. These birds are always to be found around the apiary, and very few of the beekeepers realize the damage they do. Other birds, such as the California mocking bird and some of our fly-catchers, have been accused of eating bees, but I have no proof of their guilt. In fact, I am willing that the mocker, as we call him, should have a few bees rather than any harm should be done him. We have always felt that lizards were friendly toward the bees until this year, when we killed and dissected several and found them gorged with bees. Since then we have had no mercy on them. We have found more queens than usual with defective wings this year. These, not being able to fly, of course turn out to be drone-layers.

RAISE QUEENS OR BUY THEM—SHAPE OF QUEEN—EFFECT OF REQUEENING ON LONGEVITY.

(*Answers by Jay Smith.*)

Questions.—(1) Does Mr. Smith believe that a sideliner or small honey-producer could raise good queens and raise them as cheaply as he can buy them, provided he can get them near by? I believe many queens are injured by shipping, but that a good breeder will raise better queens than the ordinary beekeeper. (2) Does Mr. Smith attach any importance to the shape of a virgin queen? Does he prefer any certain form, and if so, what is it? Will any certain form produce more eggs and live longer than another? (3) Will requeening every year tend to produce queens and bees shorter-lived than we had years ago when queens were kept three and four years? My youngest queens stood the April storm best, generally speaking. And year-old queens are my oldest in the future, unless they are exceptionally good and are kept for breeding purposes.

Michigan. A. W. Lindsay.

Answers.—(1) It depends a great deal on the sideliner or the small honey-producer himself. If he has a liking for this branch of the work, it would be both profitable and pleasurable to rear his own queens, and the risk of introducing can be eliminated by giving a large, well-developed queen-cell to the colony when the honey flow is well on; for, if this colony was queenless 10 days when the honey flow was on, it would do no harm since the bees reared from the eggs laid by the queen at this time, had she been left in the colony, would have emerged too late to do any good for that honey flow. I cannot agree with you that many queens are injured in the mail. If the journey is extended long, say over 10 days, the bees and queen are of course worn out and arrive feeble, and injury is apt to result, altho many queens have been shipped to England, and the reports from there are very gratifying, altho queens were three weeks on the road. My experience in both selling and buying queens is that if the queen is shipped when she is just beginning to lay, is a fine, vigorous queen, and is properly introduced, she will be every whit as good as tho she was raised by the bees themselves in their own hive. (2) A virgin queen just hatched should be large, long, with broad abdomen, tapering gradually from the thorax down to a point. Two or three days old, she will be much smaller, little larger than a worker, and should be extremely active and nervous. After she has mated and begins to lay she should begin to stretch out, broad and very long. A blunt queen is not as good in my experience. Neither is a small queen as good. Some report small queens are as good as larger ones. I do not wish to argue with these people, but will state that in the many thousands that I have used, I am yet to see a small queen that was worth a cent. The bigger the queen the better. (3) Requeening every year could in no way produce queens that were short-lived. How could it? If you rear a queen, the life of the queen will depend largely on the breeding queen back of her, and what difference could it make after this queen was reared whether that breeder was kept four or five years or immediately killed? The only possible difference, as I look at it, would be if you reared queens from a breeder, say five years old, thus trying to transmit the longevity from the old queen. If there were any difference I should say queens reared from an old queen would not have the vigor of those reared from a young one. In fact, I have seen old, decrepit queens that were superseded produce deformed queens, and I laid it to the fact that the old queen laid two or three eggs in the cell and the young queen was misshapen before the bees removed the extra larva. A similar question arose a few years ago concerning apples. A good many said that when they constantly took buds from young apple trees that had never borne fruit, following this up year after year, the young trees would not bear as well as tho buds had been taken from trees that had borne for a number of years. The Indiana Horticultural Society conducted a number of experiments along this line, taking buds from young nursery stock that had been taken thus for many generations, before any of the trees had ever borne fruit. Right alongside of these, buds were taken from trees that had borne fruit for many years. The decision was there was no difference.

JUST NEWS

Editors

THE Ohio Beekeepers' Association will hold its summer meet at Medina, O., on Sept. 10 next. Elaborate plans are under way to make this the largest gathering of beekeepers ever held in Ohio. Arrangements are being made to get speakers from other States. The latest machinery for extracting, including a machine uncapper, will be on exhibition. Besides a full program beekeepers will be taken to the A. I. Root Company's queen-rearing yards, where some of the latest tricks of the trade will be shown. All beekeepers invited.

The finding of vitamines in honey, as told by Stancy Puerden, in her department in this issue of Gleanings, is important news to the beekeeper, and every reader's attention is directed particularly to the article beginning on page 538. Every lover of honey, and particularly every booster of honey as a food, should read this carefully, because it will help him to boost the sale of honey, always bearing in mind that honey is a natural food while sugar is an artificial, man-made food.

The Beekeepers' Association of British Columbia will hold a convention of beekeepers at the Vancouver Exhibition, Wednesday, Sept. 15, at 2:30 p. m. The evening session will be of a social nature, with short addresses on beekeeping topics. Visiting beekeepers from Washington and other States will be heartily welcomed, and are requested to make themselves known to John Brooks, secretary, or the president, Williams Hugh.

Vigo County (Ind.) Beekeepers' Association recently conducted a four-days' inspection and demonstration tour, which proved to be a very interesting and instructive affair. The association secured the services of a moving picture artist and outfit and succeeded in getting some very good pictures, shown in Terre Haute at the leading moving picture house. So there is a set of moving pictures available, showing a colony of bees transferred from a box hive to a modern hive; cutting of a bee-tree and transferring the bees to a modern hive; burning the contents of 100 hives infected with American foul brood and disinfecting the hives, supers, lids, and bottoms by fire; also transferring a colony of bees from a log gum to a modern hive, and other educational features, that are very interesting, and should prove beneficial to modern bee culture. W. A. Hunter, Terre Haute, Ind., can be addressed regarding the possible use of these moving picture films.

The Western Canadian Beekeeper, printed and published by the Mutual Printing Co., Vancouver, B. C., and edited by Lynn Broune, is a newcomer in the field of apicultural journalism, and the official organ of the British Columbia Honey Producers' Association. This new journal makes a very creditable appearance and is well filled with matter that is both interesting and valuable to the British beekeeper.

The Crop Report Committee of the Ontario Beekeepers' Association met in Toronto on July 31, when reports were received from 470 members, together with reports from Quebec and various States. With a few exceptions the crop reported is fair. Owing to the extreme winter loss of 1919-1920 there was only half the normal number of colonies to harvest the crop. Members are urged either to save an abundance of honey for wintering, or secure sugar. Sugar is available, but may not be cheaper before the bees should be prepared for winter. The committee recommended the following prices and should any conditions arise which will materially alter the market, members will receive due notice: Best quality light extracted, wholesale 27c-32c per lb.; best quality light extracted, retail (to consumer), 32c-40c per lb.; No. 1 comb, wholesale, $3.75 to $4.75 per dozen; No. 2 comb, wholesale, $2.75 to $3.75 per dozen. (All prices f. o. b. shipping point.) The minimum price is recommended for barrels or whole crop; the maximum price for part crop or 2½-, 5-, and 10-lb. tins.

The Oklahoma Free State Fair will be held at Muskogee, Okla., the week of Oct. 4 to 9, 1920. A large exhibit of apiary products and beekeepers' supplies is desired, and to this end a premium list of $437 is offered. Competition is open to the world. Here is an opportunity for beekeepers to advertise their products and help the industry at large, by exhibiting honey in its different forms in appetizing packages. Send for a premium list to Ethel Murray Simonds, secretary of the Oklahoma Free State fair, Muskogee, Okla., or to Robert A. Holekamp, Superintendent Apiary Dept., 4263 Virginia Ave., St. Louis, Mo.

* * *

The Henry Field Seed Co., of Shenandoah, Ia., have sold 20 bushels of seed of the Prof. Hughes new annual white sweet clover to the DeGraff Canning Co., of De Graff, O., at $300 per bushel, to be delivered as soon as harvested this fall. Mr. Crites of the De Graff Company is intending to use this as a cover crop and green manure in their farming operations. He has been growing this experimentally, and has recently visited fields of it in all parts of the country, and especially in Alabama, where it originated and is now growing wild. He contracted for half of the Henry Field Seed Co.'s crop, whatever it may be, and the crop is estimated at 40 bushels. This 40 bushels is the third crop from a start of 50 seeds sent by Prof. Hughes, two years ago last spring, to the Field company. They raised 2 pounds of seed from the 50 seeds, and then last year raised 300 pounds of seed, most of which was retailed at $1.00 per ounce. They next planted about 25 pounds of seed, on about five acres, and expect 40 bushels from the crop this season.

The Spokane Home Bureau is to have a short course in beekeeping this fall. Geo. W. York, former editor of the American Bee Journal, is to have charge of the course. Mr. York thinks this is an entirely new idea, as he knows of no other city where such a course has been given. The instruction will not be confined to city population, but will be taken advantage of by the rural population in the community adjacent to Spokane.

The San Francisco Chronicle of July 18 publishes the following article on its financial page: ''That beekeeping is profitable is shown by the declaration by Western Bee Farms Corporation of an 8 per cent dividend on preferred and an extra of 20 per cent., a total dividend of 28 per cent, although the present year is regarded as one of the worst for bees in the past 15 years, through lack of rainfall. Despite these most unfavorable conditions the financial statement of this corporation shows net earnings of $25,017.99 on a total paid-in capital of only $50,000, making a net profit of over 50 per cent. A subsidiary company of the Western Bee Farms Corporation, known as the Western Honey Corporation, has just been organized under the laws of the State of California with a total capitalization of $250,000, consisting of $125,000 of preferred 10 per cent cumulative stock with a par value of $100 each and $125,000 of common stock of the same par value. This corporation is organized for the production of honey. The directors of the subsidary corporation, the Western Honey Corporation, are: John V. Filippini, director Swiss-American Bank of Petaluma; George Gale of San Francisco, public accountant; C. P. Hale of San Francisco, president of the Union Fish Company and Alaska Cod Company; C. W. Weld of San Francisco, who is the resident manager of the Crane Company; George H. Kahn, who is a well known business man of San Francisco and is engaged in the optical business; Edward R. Solinsky of San Francisco, attorney at law. The Western Honey Corporation will operate from 3000 to 5000 colonies of bees in Nevada and will be the largest honey-producing company in the United States.''

The feature which placed the recent meeting of the Michigan Beekeepers' Association in the lime light was the action taken by the beekeepers of the State Association in deciding to apply for membership in the American Honey Producers' League, an organization which has superseded the old National Beekeepers' Association. As an indication of confidence in the new movement, nearly $100 was raised by subscription on the spot to pay for the first year's membership in the League. This action places Michigan beekeepers among the first in supporting the new organization and will have a direct influence, it is hoped, on the action of other States which are holding their summer meetings in the near future.

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FIELD MEETS THAT THE EDITOR HAS ATTENDED.

The Editor of Gleanings has attended several field meets during the last two months. There were so many of them that it is impossible to give more than a passing reference to each. The first of the season was at Newark, O., July 17. Another county meet was held at Ashtabula, O., on July 22. The last mentioned was held at the apiary that supplies the big Griswold greenhouses in the vicinity. It is not often that the Ohio beekeepers can get up two such enthusiastic county meetings as these proved to be, but both the Ashtabula and Newark meetings were a big success.

On July 26 there was a good meeting of beekeepers held at Medina, Mich., at which Mr. Kelty and Gleanings' Editor spoke. On July 28 and 29 was held the Michigan State Beekeepers' field meet at Boyne City. At this meet there were several prominent speakers from outside the State: Mr. McMurray of Wisconsin; Mr. Achord of Alabama, and Mr. Dadant of Illinois. The attendance was large, and the enthusiasm was of the best. It was decided at this meeting to affiliate with the American Honey Producers' League. B. F. Kindig, State Apiarist, and Mr. Kelty, his assistant, have done very much to develop beekeeping in Michigan.

On July 31 the Editor attended the field meet of the Western New York Beekeepers' Association held at West Valley, N. Y. This was well attended. Among the speakers were R. F. Holtermann, O. L. Hershiser, and Deroy Taylor. The regular State Association field meet was held at Groton, N. Y., at the home of A. N. Coggshall on Aug. 6. There was a very large attendance, with speakers from other States. At this meet, G. G. Atwood, director of plant industry, Department of Agriculture; Dean A. R. Mann of the College of Agriculture and Director of Extension Service at Cornell, spoke. Both men are giving their hearty support to the beekeepers of their State. Mr. Hawkins of the G. B. Lewis Company, and the Editor of Gleanings were present and spoke.

On August 10 and 11 there was held at Elm Grove, near Wheeling, W. Va., a field meet of the West Virginia Beekeepers' Association. Mr. George S. Demuth of the Bureau of Entomology gave an address that was enthusiastically received.

TALKS TO BEGINNERS

By Iona Fowls

COLONIES that are provided with young queens often rear considerable brood in the early fall. Also, in many northern localities where there is a fall flow of aster, goldenrod, heartsease, etc., early fall finds the brood-chambers so crowded with brood that there is no room for more stores. In such cases the beekeeper will need to wait until later before seeing that his colonies are provided with enough stores for winter. But in the fall, as soon as it is found that there is but little brood in the hive, the colonies should be carefully examined and more stores provided if they have not enough to last them thru the winter and until the next honey flow.

Stores Needed.

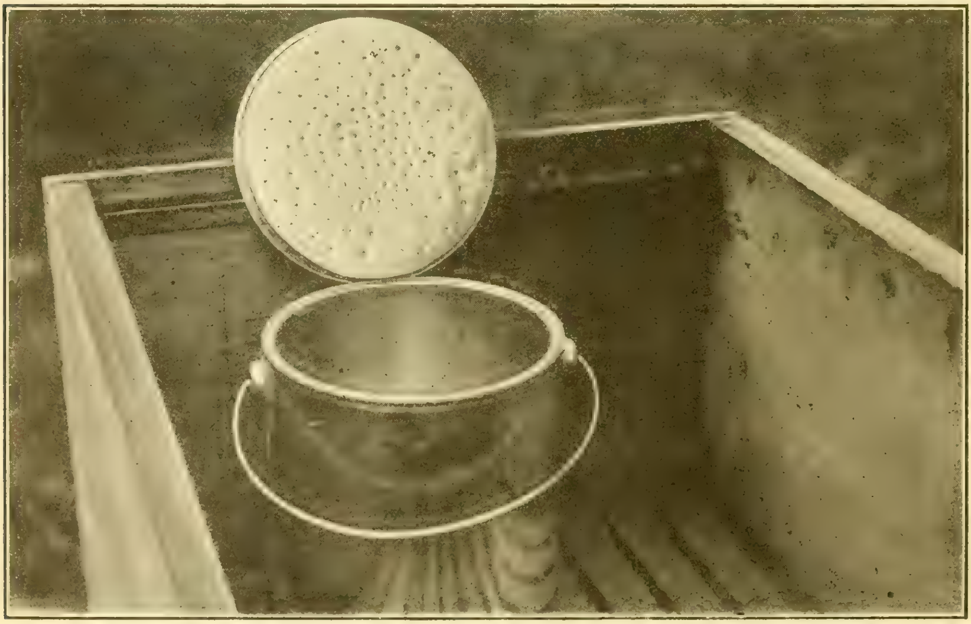
Strong colonies will need from 30 to 40 pounds of stores, the amount depending on the size of the colony. In the South as much as 50 pounds is sometimes required. A frame full of honey weighs five or six pounds, so that, by handling the combs, it will be possible to make a pretty good estimate of the amount that should be given each colony. We always make it a practice to be very generous when making this estimate, and not estimate the unsealed stores, for, of course, most of this will be used by the bees before winter.

Giving Combs of Honey.

In the July issue of Gleanings we strongly urged that enough combs of honey be saved to carry the bees thru until the next honey flow, for it surely does not pay to go to the trouble of extracting and disposing of the honey and then feed syrup when sugar is as high as at present. If this advice has been followed, the question of stores need give the beginner little concern, for those combs with but little honey may simply be replaced by full combs of honey. Those who do not intend to open their hives in the spring will need to leave all the frames in the hive; but those who winter outdoors and are willing to go to the extra trouble of examining the colonies in the spring and giving more stores if required, may contract the space which the bees are compelled to keep warm during the winter, and may do this by removing two or three combs from the hive, crowding the frames over and placing a division-board next to the vacant space, which is left at the side from which the colder winds may be expected during the winter—usually the west or north. Next month we shall tell how this vacant space is to be packed for winter.

Who Should Feed Syrup.

In case one has not saved enough stores in combs he will need to feed a sugar syrup made of two parts of sugar to one of water. Such feeding should be done as early as the condition of the colonies will permit; for if fed so late that the bees have not



The 5- or 10-pound friction-top pails with pierced lids make good feeders. Two parts of sugar to one of water is about right.

time enough to ripen it before cold weather the stores will be too thin for good wintering. Besides those who have not been foresighted enough to save honey stores for wintering, there is also another class of beginners who will find it a good plan to feed syrup. We refer to those who live where there is a fall flow of honey of inferior quality. Honeydew or honey gathered so late that it is not sufficiently ripened, often causes dysentery and death of colonies before spring. The reason for this is because the consumption of such stores results in more waste matter accumulating in the intestines of the bees; and since they are unable to expel this waste matter except during flight, such stores usually cause dysentery during winter months when the bees are unable to have frequent cleansing flights. Whenever such stores have been gathered by the bees, therefore, it is a wise plan to feed as much as 10 pounds of sugar syrup. This will be stored right on top of the undesirable stores; and since the bees during the coldest weather will not consume more than 10 pounds, they will not begin using the poor stores until spring, when they will be able to have frequent flights. At this time of the year such stores will do no harm.

Examination of Colonies.

When looking thru the hives to determine the amount of stores, and perhaps to contract the brood-chamber, care should be taken not to allow the bees to begin robbing. No hive should be open for any length of time; and if the colonies should begin robbing, the entrances should be contracted as described in the July "Talks to Beginners."

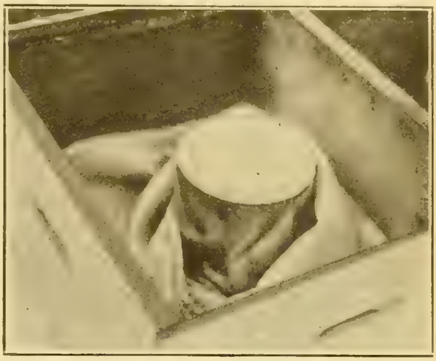
If any weak or queenless colonies are found they should be united; or if the queenless one is strong, a queen should be introduced. Any combs that are found filled with pollen, or combs that are crooked, or that contain a large amount of drone comb, should be removed. If such comb happens to have brood in at the time of examination, it may be placed at one side of the hive so that it may be removed later before packing for winter.

How to Feed Syrup.

About the best way to feed syrup is to give it in five or ten pound friction-top pails with pierced lids. The lids are pierced with about 130 nail holes made by a three-penny nail, or they may be purchased already pierced. This is really a cheap feeder; for after feeding the pail may be used as a container, only, of course, it will be necessary to have an extra cover that is not pierced to sell with the pail of honey. In this way one may have good new feeders each year and at no expense. When ready to feed, an empty deep super is placed over the brood-chamber, the pail filled with warm syrup made of two parts of sugar to one of water, and inverted directly on top of the brood-combs; the pail and the tops of the frames covered warm with burlap or other covering to retain the warmth of the cluster; and then the inner and the outer cover are replaced over the added super.

In about 24 hours the bees will probably have removed the syrup and stored it for winter use. If the bees are slow about removing the syrup, they will probably take the remainder better if it is again warmed.

Lacking a friction-top pail one may place an open dish of syrup over the frames of the brood-chamber; but in this case it will be necessary to place grass or other material in the syrup so that the bees may get it without danger of drowning. When feeding in an open dish in this way the bees will begin work on the syrup more readily if a little grass is dipped into the syrup and then placed so as to extend from the edge of the dish to the tops of the frames. The bees will immediately climb this sticky ladder and begin work on the syrup in the dish. When covering the tops of the frames and the dish to conserve the warmth of the cluster, enough room should be left between the cloth and the dish so that the bees can easily pass between the dish and the combs.



The feed pail and top of frames covered with an old sack to conserve the heat of the hive.

Wintering in Single-walled Hives.

So far in this "Talk" we have taken it for granted that the beginner has double-walled hives as we previously advised. However, for the sake of those who have their colonies in single-walled hives we shall suggest how they also may be safely wintered.

Those beekeepers who have good stores and dry well-ventilated cellars that may be kept darkened at an even temperature of about 45 or 50 degrees, and who live in a locality where the average winter temperature falls as low as 15 degrees Fahrenheit, may easily winter in the cellar those colonies that are in single-walled hives. Also weak colonies covering less than six frames may be wintered in the cellar to advantage. When wintered in the cellar less stores will be required. Probably 20 to 25 pounds will be sufficient.

The subject of packing and the actual preparation of the single-walled and double-walled hives for winter will be discussed next month.

BEES, MEN AND THINGS

(You may find it here)

THE peculiar situation noted by J. L. Byer in August Gleanings, is that the disappearing disease showed up under such condition as ours when we wrote you years ago concerning it. A good honey flow was on, with continued wet weather; this being the case, do not doubt one minute but what our conclusions were fairly correct; that the moisture in the nectar set up some fermentation which caused the trouble. More likely just as soon as weather conditions changed the bees recovered and the trouble disappeared. That was our experience here and do not doubt but what it will be his.''—E. J. Ladd, Portland, Ore.

''Letters from the southeast and northeast parts of this State and so far west as Ames, state that there was little or no white clover in sight. Also letters from western parts of Illinois indicate an almost total failure of the white clover, but stated that the prospects for a fall flow are good, as it will be here.''—A. F. Bonney, Crawford County, Ia., Aug. 3.

''The experience of the past late and cold spring has caused me to change my mind about the use of tarred paper wrappings instead of packing. I shall make packing cases this fall with four inches of packing for use in the future. After canvassing the district pretty thoroly I find that the bees well packed in cases came thru in better condition than those did with tar paper packing, and stand off disease much better than those with no winter protection.''—W. H. Lewis, Edmonds, B. C.

''It may be of interest to many of our beekeepers to know that among the number who organized the Michigan Beekeepers' Association at Jackson in 1867 were A. J. Cook of Owosso, who later wrote Cook's Manual of the Apiary; M. M. Baldridge of St. Charles, Ill., who has since achieved a wide reputation as a beekeeper; and Wm. J. Beal of Rollin, who served the State Agricultural College for more than 40 years after as Professor of Botany. Within the next three or four years Jas. Heddon of Dowagiac, T. F. Bingham of Allegan, and Frank Benton of Shelby became prominently identified with the organization. All these have since achieved national or international prominence.''—B. F. Kindig, East Lansing, Mich.

A beekeeper in Canada lived in a village. Nearby lived another beekeeper. The latter died, and his widow tried to keep on with the bees. She consulted the beekeeper of the village who helped her. He happened to be a widower, and later they married. When visiting this man in company with a friend, I said: ''There is a romance about your beekeeping, is there not?'' My friend replied: ''I helped her with her bees formerly, and now she helps me.'' A pretty short love story.—A. W. Frodsham, Chautauqua County, N. Y.

''The rain in May and June spoiled the prospect of a big spring crop of honey. Most bees are kept in box hives here, altho a few are using patent hives. An abundance of smartweed is coming on for a fall crop. Plenty of tupelo, gum, and sumac near here.''—Maurice D. Bone, Lawrence County, Ark.

I have been reading in the A B C and X Y Z of Bee Culture the articles on tupelo gum honey of Florida. We have the same conditions here in southeast Texas. The banks of the Neches River are lined on either side with both the white and black tupelo gum. This timber is from one to two miles thick. Would not the source of nectar be as good here as in Florida? I have not had time to test the possibilities of it yet. I started the year with one colony and have built up to 25 strong colonies for spring production. The bees start to working here in February and March if the weather is right.—Wm. Meador, Jefferson County, Tex.

The hopeful view of the market from the honey producers' viewpoint is so well expressed in the August Letter to Michigan beekeepers, by B. F. Kindig, State Apiarist, that we publish it here as follows, for it contains some excellent advice:

"The price of honey, as indicated by the Government Market Report, shows somewhat of a drop since the previous report. This matter should not be taken seriously by the beekeeper, however, because honey prices nearly always slump during the mid-summer and at the time when the crop first begins to move. California and Texas both report a very good crop of honey. New York and some of the other normally large producing States, including Michigan and Wisconsin, will not have the usually large crop, due to the loss of a large per cent of their bees. This condition, together with the high price of sugar, is bound to have a very stabilizing effect on the honey market, and we look for prices equal to or better than last year. The beekeepers themselves can assist to stabilize the market by disposing of as large a part of their crop as possible locally. Every beekeeper should take this matter seriously and make a special effort to develop a local trade. Do not wholesale your honey this year until you have exhausted every possible resource for selling your honey locally. Every pound of first class Michigan white honey which is held off of the wholesale market will tend to hold the prices at a point where production is profitable. Beekeepers who get in a hurry to sell as soon as their crop is off the hives always tend to create a slump in the honey market. There is no reason why the price of Northern Michigan white honey should slump at all this year; if it does slump it will be largely caused by the beekeepers throwing a large amount of honey on the market during August and September when there is normally very little demand."

OUR HOMES

A. I. ROOT

And their works do follow them.—REV. 14:13.

Thou shalt love thy neighbor as thyself.—LEV. 19:18.

The path of the just is as the shining light that shineth more and more unto the perfect day. PROV. 4:18.

ONE of the great privileges of my busy life has been the opportunities I have had to be in close touch with some of the great and good men of the present century; and I have often wondered how it happened that so many capable men, college professors and others, have stopped their work to talk with me and answer questions of a backwoods farmer's boy who never had an opportunity to get more than a common-school education. When I was of a very early age I showed my love of books and wanting to know what was going on in this great world. My parents discussed the matter of sending me to college; but we were a family of seven. There were three older and three younger than myself. My good father started alone back in the woods. In fact, he cut down the trees to build the log house where I was born, and it did not seem possible to save up the means to send me away to school.

Well, in this Home paper I wish to make a brief mention of three great and good men with whom it has been my privilege to be in close touch during the past 50 or 60 years. My zeal for bee culture brought me in touch with Prof. A. J. Cook; and as our acquaintance ripened we found there were many rural subjects, aside from bees, where we were in close accord. From childhood up I have always been greatly interested in maple-sugar making. This was one of Professor Cook's hobbies; and at my solicitation he finally gave the world his little book, "Maple Sugar and the Sugar Bush." In the preface to that book I mentioned visiting his home in Lansing, Mich., and forming the acquaintance of his good wife and two bright children—a boy and a girl. If I am correct, Prof. A. J. Cook was one of the first if not the *very first* to introduce spraying for the preservation of fruit and other farm crops. Of course, others took up and developed it further later on. I think Professor Cook also suggested county farmers' institutes and put it in practice to a certain extent. The wonderful development of bee culture in the State of Michigan was owing largely to his efforts. At one of the beekeepers' conventions, instead of letting one man or perhaps two or three men do all the talking, friend Cook suggested we should hear briefly from every one present. I wonder if that would not be a pretty good thing sometimes nowadays. Well, at one of these conventions Professor Cook said something like this:

"Now we want to hear something from that boy away over in the corner. He can certainly give us a little talk if he does not choose to do more."

The boy in the corner, altho somewhat embarrassed at being made so conspicuous, stated briefly that their bees were kept in a sort of company arrangement, and that he and his father were the "company." At this Professor Cook suggested that it was a grand idea, and he did not know of any better business arrangement in the whole wide world than to have a boy in company with his father.*

After some years we had a county farmer's institute here in Ohio, and by that time I had become considerably interested in agriculture, especially in gardening, and I happened to be present when T. B. Terry gave one of his famous talks in regard to potato-growing. Instead of a lot of theorizing he told exactly what he had *done* on a neglected run-down farm near Hudson, O. He told how he got out the stumps, then laid the tile for drainage, even if it was a gravelly hill. Then he told us how he grew clover and turned the clover under and grew potatoes, and got more and better potoes (and sold them at a higher price in the then rapidly growing town of Akron) than any of the old farmers could grow. While Mr. Terry was not a college professor, he was, if I am correct, a college graduate. After the lecture was over I asked him if what he had told us had ever been put in print. He said it had not. "Then," said I, "Friend Terry, your talk tonight must be put in the form of a little book; and I want you to get at it at once, and I will send out the book." I think our book on bee culture was just then getting a rousing reception. He kept track of his time on the book, and I think he sent in a bill of something like 40 dollars. I said, "Here is fifty. And now I will show you what a lot of good that book is going to do." It had a big reception, and in a little time it was printed in foreign languages and made a revolution in potato-growing more or less all over the world. This happened about the time "I ran away from my own funeral by riding a bicycle." His great forte in agriculture was to get a tremendous stand of clover and then plow it under. He did this not only to grow potatoes but other farm crops; and as he had some boys and girls who wanted something to do he started them growing strawberries; and to prepare the ground for strawberries after it was well underdrained he turned under a great growth of clover, knee-high or more; and this started the strawberry book, which has had about the same reception as did the potato book.

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*This is now my son-in-law, Mr. A. L. Boyden, at the head of the honey business of The A. I. Root Company.

Somewhere about 1890 at one of these same farmers' institutes I heard Prof. W. I. Chamberlain, also of Hudson, O., give a talk on underdraining, and I persuaded him to give the world a little book on tile drainage. By the way, I might mention here that my good friend Chamberlain departed this life just a few days ago at the good old age of 83 or 84. I can not begin to tell you in this brief paper what Professor Chamberlain accomplished for the world as well as for Ohio during his long and busy life. While he was a college professor at Hudson, T. B. Terry was one of his pupils; and while thus engaged Mr. Chamberlain's health failed. He did not start out riding a bicycle as I did, but he went out on to a farm a good deal as Terry did and commenced to show the world what a college professor could do in the way of *digging ditches;* and I think I have heard him say that he dug ditches and *laid tile* for 15 miles on that one farm. At my solicitation he gave the world a little book on tile drainage that has gone thru several editions and has proved to be a blessing to the world. Let me give you one illustration.

Until Mr. Chamberlain put out his book, the orthodox way of digging ditches was to dig them so wide that the digger could stand in the bottom. But our college professor had some special tools made for his ditching. He had a long narrow spade that would reach down 18 inches. Well, to push this spade down into hard clay or gravelly ground would be a pretty big feat, especially for a run-down college professor who had been kept indoors and had lost his health. Professor Chamberlain discovered that by setting the spade down diagonally, with one edge always out in the open air, it did not require very much power to take out a three-cornered slice; and this slice would stick to the spade so it could be quickly lifted out and laid on the bank; and by the use of his tools he showed how a ditch could be dug 30 inches deep without getting down into it at all, and the tiles also could be laid more accurately and in better shape than could possibly be done in the old-fashioned way.* Just as soon as I heard his talk I procured suitable tools and went to laying tiles on our Medina hard clay soil; and I discovered to my great delight that *I* too could dig better ditches, and dig them faster, than a great stout "Dutchman" who absolutely refused to follow the teachings of the book on tile drainage. Let me tell you briefly what I did.

Whenever I have published a book on *any* subject I have proposed first to "practice what I preach." Just north of our factory there is a clay sidehill of about four acres. We purchased it more to keep away undesirable neighbors than because we had any use for it. When I had the new tiles spread over the ground, the farmers who passed by said, "Why, Mr. Root, the tiles you are planning to put into that ground have probably cost you more than the land is worth." But I went ahead. Then I bought manure, which was a drug around our livery stables, and had it piled on the ground until the same farmers said that the manure was worth more than any crop I could raise. But I got it all under and grew a field of clover. Nobody around here ever saw anything like it. Then I proceeded to plow it under so as to plant potatoes as Terry did. Then the said farmers began to remonstrate, saying, "Why, Mr. Root, that clover you are plowing under is worth just now during the scarcity of hay more than any crop you can possibly raise on that land."

It was a big task to get it all under out of sight; but we did so and then planted potatoes. When digging-time came, one of the boys came down to the office and said: "Mr. Root, we have picked up 375 bushels of potatoes on one acre; and if you do not believe it, you can come and see them. The potatoes are in boxes just as we picked them up, and then we got a pole and measured off an acre. They want you to come and look at it and see if we have made any mistake."

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*It did not take our big college professor (big in a good many ways) very long to discover that where ditches are dug a foot or more wide, or something like that, at the bottom, tons of earth were laboriously shoveled out on the bank needlessly. With tools made specially for the work he dug a finished ditch just wide enough at the bottom to admit the tiles without ever going down into the ditch at all; and with these special tools he would dig in ground so hard that an ordinary laborer would think he would have to use a pick and shovel. With so little dirt to be removed, compared with the old way, our ditching professor found he could make a much better job and do it quicker; and when the tiles were laid they retained a straight and level line, and could not well be crowded out of line by filling in.

The four acres yielded pretty much the same; and as the variety was Maule's Thoroughbred, just then being introduced, we got $1.50 a bushel for firsts and $1.00 for seconds. This one crop of potatoes paid for the tiles, manure, and work. The year after these potatoes were grown we put in strawberries in accordance with Terry's teachings in his book, and people came for miles around to see the biggest crop of strawberries, and not only the finest berries but a heavier yield than anybody ever saw or heard of.

If you wish to know more about Professor Chamberlain and what he accomplished during his busy life you will find accounts of it in the Ohio Farmer and the Farmer and Stockman. All three of these men were active Christians, regular in attendance at church and Sunday school. Professor Chamberlain occupied many important offices in Ohio. I see the letters "A.M." and "LL.D." following his name in many of the papers. My last visit to his place was in 1913 when he was preparing a new edition of the work on tile drainage. I remember I said at the time I rather enjoyed growing old because I was getting rid of so many responsibilities. He laughingly replied by mentioning the important office that had recently been placed on his shoulders, and remarked that in his case it did not look very much like relief. He then asked us to walk over a little further to his home where the town of Hudson had commenced the erection of a great college or seminary; and while we were looking at the immense structure under way he suggested that the people of the region absolutely insisted that he should supervise the undertaking. Somebody, years ago, made the remark that he who had been the means of making two blades of grass grow where only one grew before, was a benefactor to the human race. Well, the three great and good men that I have been writing about this morning not only made *two blades* of grass grow, but perhaps they were the means of making untold *millions* grow where almost *none* grew before.

Once more I want to thank the Lord from the bottom of my heart that it has been my privilege to be in close touch with such men as Cook, Terry, and Chamberlain; and it has been my privilege, too, to give to the world a wider publicity to the discoveries and achievements that these good men accomplished. It was characteristic of each and every one of the three that his work and labors were not for self, but for humanity, and for the unborn humanity that is to follow after he is gone. Truly their works do follow them; and we may say, as has so often been said at funeral services: "Blessed are the dead who die in the Lord. Yea, saith the Spirit, that they may rest from their labors, and their works do follow them."

THE NEW ANNUAL SWEET CLOVER. REPORTS FROM FAR AND WIDE.

SIX FEET HIGH IN ABOUT NINETY DAYS.

I purchased a package of that wonderful annual sweet clover (of Field, probably) and sowed it in black waxy soil the last of April. I limed the ground before sowing, and harrowed the seed in. I also sowed the biennial with it. The annual is coming in bloom six feet high.

Pataskala, O., Aug 2, 1920. Henry Zinn.

* * *

STANDING THRU THE WINTER IN SOUTH CAROLINA

The sweet clover grew 3 feet high last fall, but died down and came right out again from the roots. Altho it never bloomed the first year, it has been in bloom now five weeks, and the bees are still humming over it. I have started gathering the seed, and I hope to gather enough to plant ¼ acre in September. I want to try planting this time in the fall and see if it will bloom the following year.

L. J. Davison.

York, S. C., July 12, 1920.

* * *

"JOHNNY APPLESEED."

I am taking advantage of your kind offer of a few seeds of the new annual sweet clover as mentioned by you in Gleanings in Bee Culture, and enclosing a stamped envelope for the same if you have any to spare. As you may guess, I am a beekeeper, farmer, and sweet-clover fan. The biennial variety doubled my crops of light honey, and made beekeeping profitable in a rather poor location. I think the New Annual has very great possibilities, and you, by distributing it far and wide, are truly the "Johnny Appleseed" of beedom.

Nassau, N. Y., Aug. 1, 1920. Walter E. Bain.

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SEVEN FEET HIGH IN 3½ MONTHS.

I planted two rows of the annual white sweet clover in my garden about fifty feet long. It came up a fairly good stand, and I worked it right well. Was planted on the eighth of April, and now on the 20th of this month it is over seven feet tall. All the stalks are not that tall, but it will average over six feet, the entire lot.

The bees are working it fine. It has put on seeds wonderfully, and keeps blooming. I think I made one mistake in planting some black-eyed peas close to it, for the peas are trying to climb over it, and I have had to cut the vines loose. So far I

Part of Henry Field's 5 acre field of the Annual on July 31. It is drilled in rows three feet apart.

am mighty well pleased with it as a clover, tho this is the first I have ever seen, and if it continues to grow until frost, it will be 12 feet, for it is nearly as long until frost as it has been growing.

Myrtle, Miss., July 21, 1920. F. R. Rockett.

* * *

SIX ACRES OF THE NEW ANNUAL.

Our crop of the White Annual Sweet Clover is doing fine, and we will have a good supply of seed to sell later on. Some of the earliest we can handpick and have ready to send out in September We have about six acres, all garden-grown and certain to be absolutely pure. We would rather grow only a comparatively small amount and be absolutely sure of its purity and condition, than to handle a big lot and take any chances whatever on purity.

Henry Field Seed Company.
By Henry Field, President.

Shenandoah, Ia., Aug. 4, 1920.

* * *

THE NEW ANNUAL WINTERS OVER IN OREGON.

The seed of the New Annual sweet clover, which you sent me last year, came rather late; so I planted only about one-half of it. It grew only about three feet high before frost; but this spring it was still alive, and at the present time it is about the same in height, with a few blossoms opening. I purchased an ounce of the seed from the Henry Field Seed Co. and have a fair stand. It is about the same in size as the plants which wintered, but no blossoms appear yet. I have a plot of the white biennial about eight feet high with no bloom yet.

Cushman, Ore., July 17, 1920. L. W. Derrin.

[Here is something still later:]

The biennial sweet clover is now 10 to 12 feet high, many stalks being 11 feet, and just starting to bloom. The Annual white is about four feet with buds just starting. The Annual yellow, 3 feet 4 inches high, is in full bloom.

Cushman, Ore., July 29, 1920. L. W. Derrin.

[My good friend, you give us two important items. First, that the Annual sweet clover in your mild climate will stand over winter and then start again in the spring. Second, that you have Biennial 12 feet high.]

THE NEW CLOVER IN AUSTRALIA COMES UP IN THREE DAYS; UNHARMED BY FROST.

I planted the seed of the sweet clover on March 3. It started coming up three days after, and now (June 15) the highest is over three feet, and it is coming out in full flower. It has had three severe frosts, but the flowers are still there and it is still growing. T. Graham.

Memerambi, Queensland, Australia, June 15, 1920.

* * *

REPORT FROM THE PHOTOGRAPHER.

On July 22 I went to see the clover but I found no growth to speak of since the last picture; so I did not take any more pictures. The clover was going to seed, and the birds were eating the seed.

Will S. Potter.

Bradentown, Fla., Aug. 5, 1920.

* * *

FALL PLANTING IN CALIFORNIA; NEW CLOVER PROMISES MUCH FOR ORCHARDS.

The new clover would seem to have exactly the characteristics necessary for a satisfactory early summer cover crop; its extremely rapid habit of growth making it possible to plant alone in February or March, and a short life cycle, serving its full purpose by June 15 or July 1, when it is turned under. This crop should certainly be given a thorough trial during the next season.

And for green manuring purposes in general and puncturing the plow soles and soil improvement the new clover undoubtedly offers much promise. Its rapidity of growth, giving heavy tonnage, and its short life cycle give it much to recommend it. At the present time there is a growing use of the biennial sweet clover in citrus orchards, which would undoubtedly switch to the new clover, if it proved up, just as soon as it had been given a trial and seed was available.

The writer knows of one planting of the new clover in this part of the State, and it has certainly lived up to its advance notices. Planted late last fall, at the present time seed is forming and the average growth in the field will run from six to eight feet. (From Los Angeles Times of July 18.)

"WOULD BE WILLING TO WALK TO AMES, IOWA."

Having read in the R. N.-Y. that you have planted the New Annual sweet clover in Florida with marked success I take the liberty of asking you for more information. I planted the old biennial sweet clover last fall and was surprised to find that here in Florida it, too, is an annual. I planted about Oct. 1. and it blossomed the last of May. It grew all winter, but slowly, and on March 1 was barely 6 inches high. Red clover was nearly full grown by the last of March, and crimson clover was then in full bloom. The great value of growing the clovers in Florida is that they will grow in the winter time, and it is possible to turn under crimson clover and red clover in time to plant early corn; but the bienniel sweet clover does not make much winter growth.

The question in my mind is, "Will the Annual make enough growth, say before March 15, to make it a valuable source of humus? for, as you know, that is the thing most difficult to obtain and the most necessary constituent to supply to all southern soils. There are plenty of summer-growing legumes to supply nitrogen, and crimson clover seems to me to be the best leguminous cover crop. Both burr clover and crimson clover make fine winter pastures and Kudzu makes a better hay and a heavier tonnage than sweet clover, and it is without question the most valuable plant for permanent meadows and pastures of any forage crop in the world.

You say that the Annual grew six feet high in 98 days. If it will make such a growth as that between Oct. 1 and Feb. 15 (about 140 days) here in Jefferson County, North Florida, then I would be willing to walk to Ames, Iowa, to get a few seeds. "Cherokee Farms."

Monticello, Fla., July 31, 1920.

* * *

THAT ANNUAL WHITE SWEET CLOVER.

In New Jersey.—We have a small quantity growing in good soil. It started four days after seeding, and is now making a remarkable growth, although it is not old enough yet to tell just what it will come to. Thus far it grows faster than any legume we have ever had experience with. Many readers report a similar growth.

In the South.—A. I. Root of Ohio has tried this clover in Florida, and has made a success of it there. He wrote us on July 1 that the clover was six feet high when he last heard of it, and that this growth of six feet had been made in 98 days in the Florida climate. His plants in Ohio were growing at the rate of an inch and a half every 24 hours. It seems hard to believe such statements, but from the way our own crop has started it seems fully probable to us. When we consider that such a growth can be made in a short season, and when we realize that sweet clover has about the same analysis as alfalfa, we can imagine the possibilities of such a crop in our Northern farming. If the annual clover proves as vigorous as the reports indicate, it will be quite possible in the latitude of New Jersey to grow an early farm crop and promptly follow it with this sweet clover and produce a crop by October which will be equal in value to eight or ten loads of manure to the acre. Such a crop could be followed by rye, which could be plowed under the following spring, or left on the ground as a cover crop. The possibilities of such a quick growth in the South are almost beyond calculation, and we think that if after experiment this annual clover proves what is claimed for it, that it will be generally adopted and greatly change our northern system of farming.

The Biennial Form.—We have the old two-year sweet clover growing in our apple orchard. There was a light seeding several years ago and after this crop was cut, a few scattering plants started. We let these form seed and then cut with the mower, forking the cutting around the trees. This distributed the seed, and this plan, followed year after year, has thickened the seeding and made a heavy crop, which makes a fine mulch for the trees.

Growing Like a Weed.—In many places, sweet clover is regarded as a weed, and farmers fight it as they do ragweed. We have one case where a farmer bought what he supposed was white sweet clover to be used for hay or pasture. Now he claims that the field is well spotted with the yellow sweet clover, which the neighbors regard as a pest. They insist that he must plow the whole thing right under before it seeds. The growth is so heavy that it would require a tractor to put it all under, and the farmer thinks the seedsman should pay for this work, because the seed was mixed. In our own orchard this mixture would make no difference.—(From Rural New-Yorker of July 31.)

* * *

THE WONDERFUL GROWTH OF THE NEW ANNUAL CLOVER.

Ripe seeds from our Florida sweet clover were received and sown July 17. By the way, scarified seeds in very rich soil with just the right amount of moisture needed, and just the right temperature, say somewhere about 70, will sometimes germinate in a little less than three days. The seeds from Florida with the hulls on were quite a little longer in coming up than the above; but today, Aug. 17, just one month, some of the little plants are 5 to 6 inches high and have been transplanted. The growth the first month is not particularly rapid. After the first two seed leaves, a little round leaf shoots up on a little thin spine—so thin, indeed, that it seems almost invisible. Well, this little round leaf faces the sun all day long. It faces east in the morning and faces west at night. If there does not seem to be plenty of light this little plant pushes away up, and the bright-green single leaf seems almost suspended in the air. After this leaf on the spine, grows another stem with the *three leaves* characteristic of all clovers. The very first thing the little plant does is to push down a slender taproot, and this little root goes straight down about as fast as or faster than the top goes up into the air. After the plants are from six inches to a foot high, when the taproot has gone down as far, or a little further, then the growth is very rapid. On one field of five acres where the biennial now stands from one to two feet high, on one side of the field is a single row of the new annual; and these new annual plants are five feet tall and full of bloom and bees, altho the seed was planted *almost a month later*. Somebody suggested a spell ago that wood ashes are even better than lime when preparing ground for sweet clover, or, in fact, any of the clovers. Well, this one row spoken of above, that has made such a splendid growth, had, about a year ago, a heavy dressing of coal ashes containing also some wood ashes.

Classified Advertisements

Notices will be inserted in these classified columns for 30c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued while they are in good standing.)

W. B. Wallin, D. R. Townsend, A. J. Heard, C. E. Woodhull, J. E. Crane & Son, S. T. Fish & Co., Wm. Craig, E. E. Lawrence, Allen R. Simmons, Robt. B. Spicer, J. F. Michael, Ross B. Scott, J. D. Harrah, Dr. C. E. Sheldon, J. M. Cutts, H. M. Stich, R. B. Grout, The Marugg Co., H. J. Dahl, A. H. Patch, Harrison's Nurseries, F. M. Russell, John N. Prothero.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Honey in glass or tin. Write for prices. W. M. Peacock, Mapleton, Iowa.

FOR SALE.—Clover and basswood honey in new 60-lb. cans, two cans per case.
Bert Smith, Romulus, N. Y.

FOR SALE.—Clover-basswood honey in new 60-lb. cans and 5-lb. pails.
W. B. Crane, McComb, Ohio.

FOR SALE.—Very choice white-clover extracted honey in 60-lb. cans.
Noah Bordner, Holgate, Ohio.

FOR SALE.—Finest Michigan basswood and clover honey at $30.00 per double case of 60-lb. cans. Sample 25c. A. S. Tedman, Weston, Mich.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—White clover and basswood blend honey in new 60-lb. cans, two in case. Sample 20c.
George M. Sowarby, Cato, N. Y.

FOR SALE.—We have a very choice lot of white clover honey at 25c per lb in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—New crop extracted clover honey, two 60-lb. cans to case, $30.00 per case; in 5-lb. pails, $1.50 per pail; packed 12 pails to case or 30 to 50 pails per barrel. H. G. Quirin, Bellevue, O.

FOR SALE.—Light Haitien honey, 400-lb. barrels, 19c lb.; 60-lb. cans white sweet-clover honey, 23c lb.; new white sage, 25c lb., f. o. b. New York. 60-lb. cans shipped two in a case.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—About 40,000 lbs. extra-fancy white-clover honey. Price f. o. b. Kalona, case, 2 60-lb. cans, 22c a lb.; case, 1 60-lb. can, 23c a lb. Sample bottle by mail, 20c.
J. M. Gingerich, Kalona, Iowa.

RASPBERRY HONEY for sale, left on the hive until thoroly ripened by the bees. It is thick, rich, and delicious. In new 60-lb. cans. Price, two cans in one case, $30.00. One can, $15.50. Sample, 25c.
Elmer Hutchinson & Son, Lake City, Mich.

FOR SALE.—Finest Michigan raspberry, basswood, and clover No. 2 white comb, $6.50 per case; No. 1, $7.00; fancy, $7.50; extra fancy, $8.00; 24 Danz. sections to case. Extracted, 60-lb. can, 25c per lb. W. A. Latshaw Co., Clarion, Mich.

FOR SALE.—Finest quality white-clover extracted honey, well ripened and of good flavor, put up in new 60-lb. and 12-lb. cans, and 10- and 5-lb. pails. Also some nice comb honey.
R. C. Ortleib, Dolgeville, N. Y.

FOR SALE.—Finest quality clover extracted honey, well ripened and of a good flavor, in 60-lb. cans, two cans to the case, at 25c per pound, f. o. b. here. Also 500 cases of No. 1 comb honey.
J. D. Beals, Oto, Iowa.

FOR SALE.—Clover extracted honey of unsurpassed quality; new cans and cases, prompt shipment. You will be pleased with "Townsend's quality" extracted honey. Not a single pound extracted until long after the flow was over; thus the quality. Would advise intending purchasers to order early, as we have only a half crop. Address with remittance.
E. D. Townsend & Sons, Northstar, Mich.

OVER 10,000 POUNDS of choice Michigan honey, put up in 5 different styles of packages, have been ordered for sale and exhibit at the Michigan State Fair, to be held at Detroit, Sept. 3-12. We invite dealers and packers to visit this exhibit and let us make quotations on any quantity wanted, either in the packages on exhibition, or in packages of their own selection. No quotation given unless the amount wanted and style of package are designated. We can furnish thousands of pounds of the choicest Michigan honey. E. B. Tyrrell, Supt. Apiary Dept., Michigan State Fair, 502 Bowles Bldg., Detroit, Mich.

HONEY AND WAX WANTED

Quote me your best price on clover honey in 60-lb. cans. E. C. Pike, St. Charles, Ills.

WANTED.—Clover extracted honey in 60-lb. cans.
I. J. Stringham, Glen Cove, N. Y.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—Honey, comb and extracted. State quantity and price, and send sample of extracted.
A. W. Yates, Hartford, Conn.

WANTED.—Bulk comb, section and extracted honey. Write us what you have and your price.
J. E. Harris, Morristown, Tenn.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax, and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address, so we can identify it immediately upon arrival, and make prompt remittance.
The A. I. Root Co., Medina, Ohio.

FOR SALE

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. J. Healy, Mayaguez, Porto Rico.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

FOR SALE.—Second hand honey tins, two per case, in exceptionally fine condition at 50c per case.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

How many queens have you lost introducing? Try "The Safe Way" push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

ROOT'S BEE SUPPLIES.—For the Central Southwest Beekeeper. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

PORTER BEE ESCAPES save honey, time and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You can save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—Good second-hand double-deck comb-honey shipping cases for 4¼ x 4¼ x 1⅞ sections, 25c per case, f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash, and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

WANTS AND EXCHANGE

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Fully drawn-out combs, any-sized frames. Free from disease.
Geo. Karow, Cable, Wisc.

WANTED.—Hand foundation mill, or just the rollers; also Barnes saw. State condition and lowest price. John M. Hewlett, 61 Ballston Rd., Schenectady, N. Y.

BEES WANTED.—In box hives in the Gulf States. Any one knowing of a quantity of cheap bees, in a good location in the South, will confer a favor upon E. D. Townsend & Sons, Northstar, Mich., by advising them of the location.

WANTED.—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

REAL ESTATE

FOR SALE.—A farm of 350 acres; 150 acres tillage; 150 acres pasture; will graze 100 head of grown stock; 50 acres virgin timber, arable if cleared. Rich soil, well fenced and watered, and fair improvements in good condition, $20 per acre. A farm of 160 acres, unimproved, one mile from good town, $5000. See these farms before crops are harvested. Terms of sale to suit buyers.
B. F. Averill, Howardsville, Va.

FLORIDA.—A gentleman farmer home on the river. Fishing and boating. 14 miles from Tampa on brick road. 15 acres good land, nice new bungalow, garage, stable, outbuildings, shade trees, flowers, shrubbery, small orange grove. Ideal bee location. Price, $5000. Owner moving to larger property. Photograph if desired.
Edmund J. Courtot, Owner, Sutherland, Fla.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens, $1.00 each.
W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

When it's GOLDEN it's Phelps. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Italian queens, three-banded and Goldens, untested, $1.25 each; 6, $6.50; 12, $13.00. Now ready. G. H. Merrill, Pickens, S. C.

Queens of Dr. Miller's strain, untested, $1.25 each; $12.50 per dozen; tested, $1.75 each; $18.00 per dozen. Safe arrival and satisfaction guaranteed. Geo. A. Hummer & Sons, Prairie Point, Miss.

FOR SALE.—My famous three-band Italian queens, one for $1.25; six for $7.00. From June 1 to November.
J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Golden queens. Orders filled in rotation. Untested, $1.10; select untested, $1.50 each. Safe arrival.
Hazel V. Bonkemeyer, Randleman, R. D. 2, N. C.

BEES BY THE POUND.—Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas. E. B. Ault, Prop.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Leather-colored Italian queens from Dr. Miller's breeder. Virgins, $1.00; tested, $1.50; July 1, 5, $6.00; 10, $11.00.
F. R. Davis, Stanfordville, Dutchess Co., N. Y.

QUEENS OF QUALITY.—Our Hand Moore strain of three-banded Italians are beautiful, and good honey-gatherers. Bred strictly for business. Untested, $1.50; half-doz., $8.00. Select, $2.00.
W. A. Latshaw Co., Clarion, Mich.

FLORIDA BEES FOR SALE.—20 colonies, mostly Italians, healthy so far as I know. Come quick. No useless correspondence. $200.
J. H. Collins, Cassadaga, Volusia Co., Fla.

FOR SALE.—Full colonies of bees (with Italian queen) in 10-frame Root Co. hives, $14.00 each, two for $27.00.
J. W. Harrison, White Pigeon, Mich.

PURE ITALIAN QUEENS.—Not the cheapest, but the best we can grow; bright yellow, with clean bill of health; sure to please; such as we use in our own yards. Untested, $1.25; $14.00 per dozen.
J. B. Notestein, Bradentown, Fla.

FOR SALE.—Three-banded Italian queens. Untested queens, $1.25 each; 6, $6.50; 12, $12.00. Select untested, $1.50 each. Satisfaction guaranteed.
W. T. Perdue & Sons, Fort Deposit, R. D. No. 1, Ala.

Highest grade three-banded Italian queens. Virgins, 75c each; untested, each, $1.25; 6, $6.50; 12, $12.00; 50, $47.50; nuclei, $3.00 per frame, queens extra. No disease, and satisfaction guaranteed. A. E. Crandall, Berlin, Conn.

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.00 for 10; $1.10 each when 25 or more are ordered. Allan Latham, Norwichtown, Conn.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, 1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, $2.00; 6, $8.00; doz., $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

We have enlarged our queen-yard considerably. We can take care of orders better than ever, large or small. Untested queens, $1.50 each, or $15.00 per dozen. J. A. Jones & Son, Montgomery, R. D. No. 1, box 11a, Ala.

FOR SALE.—Golden Italian queens, untested, $1.15; 6 for $6.50; 12 or more, $1.00 each; tested, $2.00 each; select tested, $3.00 each; extra select tested, $4.00 each. No bees for sale.
D. T. Gaster, Randleman, R. D. 2, N. C.

We are now booking orders for early spring delivery of two and three frame nuclei, with untested or tested queens. Write for prices and terms. We also manufacture cypress hives and frames.
Sarasota Bee Co., Sarasota, Fla.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

"Those who think must govern those who toil;" for the busy bee man who must keep an efficient force always at his command in the hive there's no helper equal to Victor's Italian queens. Mated, $1.25 each; 6, $7.00; 12, $13.50.
Julius Victor, Martinsville, N. Y.

TESTED QUEENS. — Three - banded leather colored Italians, descended from the celebrated Moore strain. These queens are now one year or less old, right in their prime. Price, $2.00 each. Safe arrival and satisfaction guaranteed. A few breeding queens, $5.00 each.
Elmer Hutchinson & Son, Lake City, Mich.

FOR SALE.—By return mail, three-banded leather-colored Italian queens from the very best honey-gathering strain, $1.50 each, or $15.00 per dozen; tested, $2.00 each. You can buy cheaper queens elsewhere, but you can not get better queens anywhere. Delivery and satisfaction guaranteed.
Jasper Knight, Haynesville, Ala.

DAY-OLD QUEENS at practical prices. Superior improved Italian stock. Mailed in safety introducing cages. Safe arrival guaranteed to any part of the U. S. and Canada. Send for circular. Prices, 1, 75c; 10, $6.00; 100, $60.00.
James McKee, Riverside, Calif.

QUEENS.—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, $2.00; six, $9.00; twelve, $16.80. After June 1, one $1.50; six, $8.00; twelve, $14.00. Select tested, $3.00 each. Write for prices per 100. Descriptive circular free.
Hardin S. Foster, Dept. G, Columbia, Tenn.

ITALIAN QUEENS.—Three-banded, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, $1.25 each; 12 or more, $1.00 each. Send for circular.
J. H. Haughey, Berrien Springs, Mich.

ITALIAN QUEENS.—The Old Reliable three-banded Italians, the best all-around bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, $1.50; 6, $8.00; 12, $15.00. Tested, $2.25; 6, $12.00; 12, $22.00. Selected tested, $3.00 each. Descriptive circular and price list free.
John G. Miller, 723 C St., Corpus Christi, Texas.

WESTERN HEADQUARTERS FOR PURE ITALIAN QUEENS, the old reliable, three-banded stock, bred strictly for business. My select untested are LAYING before being caged; less loss introducing. Price, after Aug. 1, 1, $1.50; 12 or more, $1.25 each. Tested, $2.00. Breeders, $5.00. Circular free.
J. E. Wing, 155 Schiele Ave., San Jose, Calif.

FOR SALE.—Pure Italian queens, golden or leather-colored, packages and nuclei; 1 untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100; virgins, 50c each; packages 24 and under, $2.25 per pound; 25 and over $2.00 per pound; nuclei, 1-frame, $4.00; 2-frame, $6.00; 3-frame, $7.50; queens extra. One-story 10-frame colony with queens, $12.00. Golden Star Apiaries, New Almaden, near San Jose, Calif.

MISCELLANEOUS

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Golden Seal seed.
S. Pitts, Stronghurst, Ills.

FOR SALE.—Genuine White Annual Sweet Clover. Garden-grown on our own grounds and guaranteed pure. New crop seed, 1 lb., $5.00; ¼ lb., $1.50; 1 oz., 50c, all postpaid.
Henry Field Seed Co., Shenandoah, Iowa.

HELP WANTED

WANTED.—All year round position with bees, preferably New York. Moderate salary with opportunity for advancement desired.
Daniel B. Hotaling, Chautauqua, N. Y.

WANTED.—Beekeeper for apiary at Lilly Orchard; married man able to grade and pack fruit preferred. Come and get a job during apple-picking and size up the location. Can give work in orchard when not busy with bees.
H. W. Funk, Normal, Illinois.

SITUATIONS WANTED

WANTED.—A position in a southern bee-yard, December 1. C. W. Kellogg, Columbiana, O.

INDIANOLA APIARY

Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, $1.00; Tested, $1.50. Nucleus, $2 per frame, queen extra.

J.W.SHERMAN,VALDOSTA,GA.

MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.

If you have not received 1920 catalog send name at once.

QUEENS

Golden and three-band Italians. The kind that fill from two to four supers.
Untested, $2.00 each; $11.00 for 6; $45.00 for 25. No discount for 50 or 100 lots. Tested, $3.00 each; $16.00 for 6. Send orders for queens as early as possible.
Full colonies (bees and queen) $12.00 and $15.00 for 8- and 10-frame Root Co. hives.
S. C. R. I. Red eggs for hatching (280 egg trapnested strains) $2.50 per 15. $12.00 per 100.

MISS LULU GOODWIN, Mankato, Box 294, Minn.

HONEY

FINEST MICHIGAN Raspberry, Basswood and Clover comb and extracted honey. Unexcelled for quality.

"SELL MORE HONEY"

Crate 6 cases (24 sec.) Fancy Comb	$45.00
Crate 6 cases (24 sec.) A No. 1 Comb	42.00
Crate 6 cases (24 sec.) Extra Fancy	48.00
Crate 6 cases (24 sec.) No. 2 comb	39.00
Two cans (120 lbs.) Extracted	30.00

Send Today for Free Sample.

W. A. LATSHAW COMPANY, Clarion, Mich.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

Raise Guinea PIGS- FOR US!

We need men and women, boys and girls everywhere to raise Guinea Pigs for us. We tell you where to get them, show you how and buy all you raise. Big opportunity for money making. Thousands needed weekly.

Easy to Raise—Big Demand No special knowledge, **Large Profits** experience or equipment needed. They breed the year round—are very prolific—require but little space or attention. Pay better than poultry or squabs—cost less to house, feed, keep, easier raised—less trouble, market guaranteed. **FREE** Particulars, contract, and booklet how to raise

CAVIES DISTRIBUTING COMPANY
3145 Grand Avenue, Kansas City, Mo.
Largest Guinea Pig breeders and distributors in America.

"Special Crops"

A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. $1.00 per year. Sample copy 10c. Address

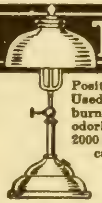
Special Crops, Box G, Skaneateles, New York

ATTENTION

Pacific Northwest Beekeepers

We handle a full line of supplies for beekeepers, including Italian Queens. Write us your requirements and for our catalog B. It's free.

Spokane Seed Company, Spokane, Wash.
904 First Avenue



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Mott's Northern-bred Italian Queens

Untested, $1.00 each; $12.00 per dozen. Select untested, $1.25 each; $15.00 per dozen.
Select guaranteed, pure mated, $1.50 each. Select tested, $2.50 each.
Plans "How to Introduce Queens, and Increase," 25c

E. E. Mott, - - Glenwood, Mich.

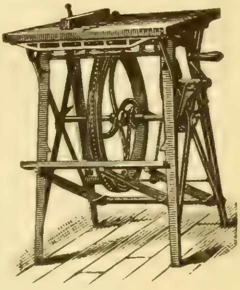
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS



ALWAYS ON TOP

Established 1885

Write us for catalog.

BEEKEEPERS' SUPPLIES

The Kind You Want and The Kind That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co's brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Vitamines in Honey.—Continued from Page 539.

from among the multitude of charts and diagrams which accompanied the report from Prof. Hawk; but, if you could know how extremely careful I have been in writing this not to exaggerate or claim one bit more for honey than the report would justify, you would concede me that little privilege.

Dear me, I have a vision of a solemn gentleman coming toward me with a large wet blanket consisting of a remark like this: "Why get up so much excitement over the presence of the fat-soluble vitamine in comb honey? The amount of honey eaten is so small in comparison with other foods that the presence or absence of vitamines makes little difference." I refuse to be squelched. We are warned repeatedly of late that the modern civilized diet with its devitalized, demineralized, and over-refined foods has a very small margin of safety as regards valuable soluble mineral salts and the various unidentified dietary essentials. Therefore I propose three cheers for the world's oldest and most beautiful sweet, comb honey.

Next month I intend to tell you more of Prof. Hawk's report, including his experiments as to the digestibility of honey.

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

NEWMAN'S ITALIAN QUEENS

Bred from the best. No disease. Satisfaction and safe arrival guaranteed.
Untested, $1.50; 6, $8.00; 12, $15.00. Select Untested, $2.00; 6, $10.00; 12, $19.00.
Circular free.

A. H. NEWMAN, - - MORGAN, KY.

Large, Hardy, Prolific Queens

Three-band Italian only. Pure mating and safe arrival guaranteed.
One, $1.30; 6, $7.50; 12, $13.50; 100, $110.00

Buckeye Bee Co., Lock Box 443 Massillon, Ohio

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 983

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.
THE EDWARDS MFG. CO.,
933-983 Pike St., Cincinnati, O.

FREE Samples & Roofing Book

MICHIGAN-BRED QUEENS—THREE-BANDED ITALIANS ONLY

TESTED DISEASE-RESISTERS

PRICES	June 15 to July 15			July 15 to Oct. 1			
	1	6	12	1	6	12	100
Untested	$1.50	$8.00	$15.00	$1.30	$7.50	$13.50	$110.00
Select Untested	1.75	9.00	16.00	1.60	8.00	14.00	115.00
Select Tested any time after June 20				3.00	16.00	29.00	
Select Day-old Virgins after June 1				.60	3.50	6.50	50.00

D. A. DAVIS, 216 GREENWOOD, BIRMINGHAM, MICHIGAN

BEEKEEPERS' SUPPLIES

New prices are now in effect, and a new condensed price list giving latest prices is nearly ready for distribution. Send for it.

HONEY AND BEESWAX

We are using increasing quantities of choice honey to pack in glass, and can also use quantities of beeswax in preparation for next season. We are here to serve you.

THE A. I. ROOT COMPANY
OF CALIFORNIA

52-54 MAIN ST.
SAN FRANCISCO, CALIF.

1824 EAST 15th ST.
LOS ANGELES, CALIF.

In NEW YORK

Our new offices and warehouse are now newly and permanently located in larger and better quarters owned by ourselves, at 23 Leonard Street.

THE A. I. ROOT CO.

QUEENS OF

MOORE'S STRAIN

OF ITALIANS

Produce Workers
That fill the super quick
With honey nice and thick

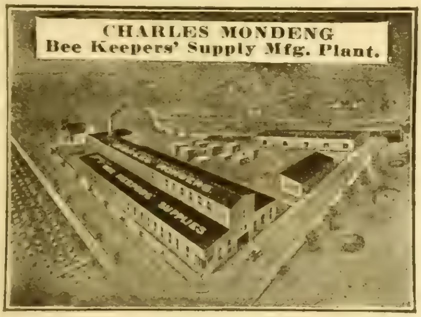
They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens $1.50; 6, $8.00; 12, $15.00
Select untested..$2.00; 6, $10.00; 12, $19.00

Safe arrival and satisfaction guaranteed. Circular free.

J. P. MOORE, Queen Breeder
ROUTE 1 MORGAN, KY.

BEE SUPPLIES



The largest and oldest Bee Supply manufacturer in Minnesota can offer you **bee ware** that will keep that "satisfied smile" on your face. Excellent quotations given on frames, spacing or unspacing. Send for my 1920 Catalog and Price List. **Think** it over and in thinking **be wise** and save money by placing your orders **before** the rush is on. *Will Take Beeswax in Trade at Highest Market Prices.*

CHARLES MONDENG
146 Newton Ave., N. Minneapolis, Minn.

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas
Established 1899

---

200 SELECT TESTED QUEENS

Beginning August 1st, we will sell 200 select tested queens, selected from our 10 apiaries and bred from a $200 queen. These queens are the result of 35 years of practical experience in breeding the very best strain of Italian bees that could be obtained. Our guarantee is back of every queen. If you want to requeen your bees, you could not buy a better queen for a breeder. Prices of these select queens, $3.00 each in any quantity. Untested $1.75 each.

ORDERS FILLED IN ROTATION.

FRED LEININGER & SON, -:- DELPHOS, OHIO

Exacting Beemen want "Falcon" Queens

WE spare no pains in giving our patrons the best bred queens. Good queens are vital to the success of a honey crop and to building up strong, "producing" colonies.

Price List of "Falcon" Three-banded Italian Queens

JULY 1 TO OCTOBER 1.

	1	6	12
Untested	$1.80	$9.90	$18.00
Select Untested	2.00	11.10	20.00
Tested	2.50	14.40	29.00
Select Tested	3.00	17.40	33.00

Write for Our Red Catalog

W. T. FALCONER MANUFACTURING CO.
Falconer (near Jamestown), N. Y., U. S. A.
"Where the best beehives come from"

Sections! Sections!! Sections!!!

We have in stock an oversupply of the following sizes and are offering them at a big reduction, WHILE THEY LAST. These sections are of a very good grade, and mostly standard sizes. For lack of warehouse room we are sacrificing them at the following low prices:

No. 2.—4¼ x 4¼ x 1¾, Two Beeway	per M	$10.00
No. 2—4¼ x 4¼ x 1⅞, Two Beeway	per M	10.00
No. 2—4¼ x 4¼ x 1½, Plain or No Beeway	per M	9.00
No. 2—3⅝ x 5 x 1½, Plain or No Beeway	per M	9.00
No. 1—4 x 5 x 1 7/16, Plain or No Beeway	per M	10.00
No. 2—4 x 5 x 1 7/16, Plain or No Beeway	per M	9.00
Mill Run—4 x 5 x 1 7/16, Plain or No Beeway	per M	9.70

The above prices are net, cash with order. Sold in lots of not less than 1000.

We are well prepared to fill all orders for Bee Supplies promptly. Send us your inquiries and we will be pleased to quote you our prices. Send us your name and address and receive our next season's catalog and price list when same is published.

AUGUST LOTZ COMPANY, -:- BOYD, WISCONSIN

THAGARD'S ITALIAN QUEENS

Bred for Quality. My Three-Band Queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

We have enlarged our queen-rearing department to such an extent that we will be in a position to turn out three thousand queens a month in 1921. We have tested out a nice lot of breeding queens from Italy, and will use them altogether as breeders in the future; the lot that we have selected for breeders have proved wonders; money cannot buy better queens than we will have ready for our customers in the future. Place your orders now for Spring delivery, if you want your queens early.

	Prices for April to July.			After July 1st.		
	1	6	12	1	6	12
Untested	$2.00	$ 8.00	$15.00	$1.50	$ 7.50	$13.50
Select Untested	2.25	10.00	18.00	1.75	9.00	16.00
Tested	3.00	16.00	28.00	2.50	13.00	24.00
Select Tested	5.00	25.00	50.00	5.00	22.00	41.50

We guarantee pure mating, safe arrival, and perfect satisfaction. Circular free.

V. R. THAGARD -:- -:- GREENVILLE, ALABAMA

YOU WANT TO SAVE ABOUT 60% ON YOUR SUPPLY BILL

We have bought the stock of the M. C. Silsbee Company, which we are offering at a saving up to 60%. This stock carries our guarantee, which reserves you the right to return at our expense any article not exactly as represented.

It consists of 8 and 10 Frame One story Hives, Hive Bodies, Extracting Supers, Hoffman Frames, Shallow Extracting Frames, and Bottom Boards.

If you are in need of any of this equipment, let us quote you on your list.

Dadant's Foundation, Lewis Beeware, Root's Extractors in stock, also Storage Tanks.

Our office is established in our New Building and our office staff reorganized, and your correspondence is assured prompt attention.

Send for shipping tags to ship your old combs to be rendered.

THE DEROY TAYLOR COMPANY
NEWARK, NEW YORK

Queens Bees by the Pound Queens

The rush of our bee shipping season will practically be over by July 1st; we will then be in position to take care of your QUEEN orders.

Just received a picture from a party showing a colony built up from about 2 pounds of bees and a queen last spring, 1919, and then weighed 330 pounds gross; others in the yard did better than that one. We have had colonies here gather 400 pounds spring crop.

A party wrote from Chicago: "The shipment of bees was received on May 7th this year, hived same day; did not examine until 18th, when we found all queens accepted and they had laid in three frames. We greatly appreciate receiving such good grade of bees and hope to favor you with larger orders in the future." Another from Nebraska: "Wish to tell you how well pleased I am with the business done with you; some of the 50 packages had less than 100 dead bees in them. Those queens of yours are the best uniform QUEENS I have ever received. What is your price on 200 2-pound pkgs. with queens for spring 1921?" Our QUEENS are hardy gentle Italians; they grow bees that fill the supers. GUARANTEE safe arrival and satisfaction on QUEENS. With my method of feeding can ship bees successfully in July and August. Get a few packages and build them for the fall flow or winter. Send for FREE Circular giving reference, prices by Parcel Post, Nuclei, Guarantee, etc. Twenty years a beekeeper.

Advertising, labor, and sugar have all advanced, yet we quote Bees and Queens July 1st balance of the year as follows:

	1	6	12	50	100
Untested Queens	$1.50	$7.50	$13.50	$48.00	$95.00
Select Untested Queens	1.65	8.25	14.85	52.80	104.50
Tested Queens	2.50	13.50	27.00	110.00	
Select Tested Queens	3.00	16.20			

1 pound pkg. Bees	$2.40;	25 or more $2.16 each
2 pound pkg. Bees	4.25;	25 or more 3.83 each
3-pound pkg. Bees	6.25;	25 or more 5.62 each

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALALLEN, TEXAS
E. B. AULT, Prop.

DONT SEND A PENNY

The shoes offered here are such wonderful values that we gladly send them, **no money down.** You will find them so well made and so stylish and such big money-saving bargains that you will surely keep them. So don't hesitate—just fill out and mail the coupon and we will send you a pair of your size. No need for you to pay higher prices when you can buy direct from us—and no need sending money in advance before receiving the shoes. Why pay out $6, $8 or more for shoes not nearly so good? Act now. Mail the coupon today while this special offer holds good. Pay only when shoes arrive. And your money back if you want it.

Great Work Shoe Offer

We can't tell you enough about these shoes here. This shoe is built to meet the demand for an outdoor city workers' shoe and for the modern farmer. Send and see for yourself. Built on stylish lace Blucher last. The special tanning process makes the leather proof against acids in milk, manure, soil, gasoline, etc. They outwear three ordinary pair of shoes. Most comfortable work shoe ever made. Very soft and easy on the feet. Made by a special process which leaves all the "life" in the leather and gives it wonderful wear-resisting quality. Double soles and heels. Dirt and waterproof tongue. Heavy chrome leather tops. Just slip them on and see if they are not the most comfortable, most wonderful wearing work shoes you ever wore.

Pay only **$3.98** for shoes on arrival. If after examination you don't find them all you expect, send them back and we will refund your money.

Get This Remarkable Bargain

To order these shoes mark X in the ☐ by No. AX18068 in coupon. Be sure to give size and width when ordering.

Send No Money With Order

Stylish Dress Shoe

Special bargain to close out a limited stock of these smart Dress Shoes. Act quickly if you want a pair. Made in classy lace Blucher style. Splendid quality calf uppers. Splendid solid leather soles and heels. Come in black only. At our price these shoes challenge all competition. Make your own decision after you examine and try them on. Sent absolutely on approval. You must see them to appreciate the fine quality of material, workmanship and astonishing bargain value. No money with order. Be sure to give size when ordering.

Pay only **$3.98** for shoes on arrival. And that returned if you don't keep the shoes. Send today because a price like this soon sells the stock.

Mark X in ☐ by No. AX15106 in coupon. Be sure to give size wanted.

Send Coupon

Keep your money until shoes come. Not a cent to pay now. Sent direct to your home on approval. Then let the shoes themselves convince you of their bargain value or return them and get your money back. This is the modern, sensible way to buy—the way thousands are buying their shoes today direct from us—getting satisfaction—saving money. Fill out the coupon and send it now.

Leonard-Morton & Co.
Dept. 6927 **Chicago**

Leonard-Morton & Co., Dept. 6927 Chicago

Send at once the shoes which I have marked X in ☐ below. I will pay price for shoes on arrival with the understanding that if I do not want to keep them I can send them back and you will refund my money.

☐ Work Shoes No. AX18068 $3.98 ☐ Dress Shoes No. AX15106 $3.98

Size...

Name...

Address...

YOUR MONEY

To Our Beekeeper Friends:

The great growth of the beekeeping business everywhere has resulted in larger and larger demands upon the bee-supply manufacturer. Because of this fact, our business calls for constantly increasing capital. We can meet these new demands by calling on our banker friends, who are and always have been glad to meet our needs.

But we would prefer to become independent of the banks by calling into our company as stockholders a larger number of our beekeeper friends. It is a plain business proposition that a bee-supply manufacturer prefers beekeepers as stockholders, for the good will of a large number of beekeeping stockholders means increased prosperity for the bee-supply manufactory in which they are financially interested.

Accordingly, we shall offer our beekeeper friends another $100,000 of our 7% second preferred stock at par and accrued dividend from June 15 last. The previous offering of this stock, in 1919, was oversold $40,000. It has every safety an investor can ask. Write for fullest information. We shall be pleased to answer any and all questions an intending stockholder may want to know about this old but still growing business.

Your savings and surplus money, we are certain, can not be put into a safer or better investment. All our own money and lifelong savings are in this same investment.

THE A. I. ROOT COMPANY

Medina, Ohio

A. I. Root, President. J. T. Calvert, Treasurer

WE WANT TO SELL YOU

BEE SUPPLIES

After your year's labors you have gathered in the golden store. You may need a few supplies for this year, but you certainly need some for next season. Order this month and receive the early order discount.

The railroads are congested now, and the probability is that the longer you wait the more congested they will become. Order now and avoid delay.

Drop us a card, and we will be pleased to quote you.

NOW is the time to order for next season.

We can fill your orders with more accuracy and promptness.

F. A. Salisbury

1631 West Genesee Street

Syracuse, N. Y.

9-oz. Taper Jar

SPECIAL SALE OF

HONEY JARS

We have a surplus stock of taper jars, holding 9 ounces, put up two dozen in a case, including lacquered tin tops, at our Philadelphia branch. The cost of these jars has more than doubled in the past three years. We offer for a short time the surplus stock available at 85 cents per case, $8.00 for 10 cases, $75.00 for 100 cases. Prices f. o. b. Philadelphia.

Send your order direct to

THE A. I. ROOT COMPANY
Medina, Ohio

Queens--Rhode Island--Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, $1.25 each; 6 for $7.00. Circular on application. Queens delivered after June 1.

O. E. Tulip, Arlington, Rhode Island
56 Lawrence Street

PATENTS

Practice in Patent Office and Court
Patent Counsel of The A. I. Root Co

Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

WHEN YOU THINK OF BEEKEEPERS' SUPPLIES

THINK OF INDIANAPOLIS

We carry a complete line of Root's goods and we solicit your trade. Our slogan: Courteous treatment and prompt service. Catalog for the asking.

THE A. I. ROOT COMPANY (Indianapolis Branch) 873 MASS. AVE.

DOLL SAYS

don't invite Disappointments by delay in ordering your Honey Containers. Make sure of having all the Cans and Bottles you will need, by ordering them NOW. I am splendidly prepared to fill all orders for Friction Top Cans of 3 lbs. to 10 lbs. capacity—5-gallon Square Cans—and ½-lb. to 3-lb. white flint glass Screw Top Honey Bottles. Standard-grade goods, at prices that will interest you.

AN EASY WAY TO SAVE MONEY

You can save 15 per cent to 20 per cent on the cost of your Honey Cans and Bottles this year, by ordering them from DOLL—and instructing us to ship direct from factory to you.

I am also ready to make prompt shipments of anything wanted in the way of White Pine Hives, supers, extractors, Foundation, and other Supplies—none better to be had in either Style, Quality or Construction.

BE ready when the Honey begins to flow, by GETTING ready NOW.

Be sure to get my price quotations before ordering this year's Supplies.

P. J. DOLL BEE SUPPLY CO.

NICOLLET ISLAND MINNEAPOLIS, MINN.

Forehand's Three Bands

THE THRIFTY KIND

Twenty-eight years of select breeding brings these bees up to a standard surpassed by none, but superior to many.

Place your order now for August and September delivery.

No reduction in prices after July 1st as stated in circular.

PRICES:

	1	6	12	100 Each
Untested - - - -	$1.50	$7.50	$13.50	$1.00
Select Untested -	1.75	9.00	16.50	1.25
Tested - - - - - -	2.50	13.00	24.50	2.00
Select Tested - -	4.00	22.00	41.50	3.35

W. J. FOREHAND & SONS, FORT DEPOSIT, ALA.

THE BEE MEN

QUEENS

Queens of highest quality by return mail; all orders filled next day after received. This is your last chance to get your colonies headed for 1921. Rush your orders now; we guarantee to please you; the three-banded Italian has a reputation. We are skillful and experienced queen-breeders. Ten years' experience in breeding queens insures queens of highest quality. We do not leave anything undone. We guarantee our queens to be reared under as favorable conditions as any in U. S. A., and that no better can be bought with money. The strain is proved and of highest quality. Now for your 1921 honey crop you are wanting more honey; to get more you must have your colonies headed with good queens. Let us have your orders for August and September. We guarantee safety from all foul brood disease because our apiaries are absolutely free from any disease.

Prices from August to September

	1	6	12	100
Untested.	$1.50	$7.50	$13.50	$1.00 each
Select Untested	1.75	9.00	16.50	1.25 each
Tested.	2.50	13.00	24.50	2.00 each
Select Tested	4.00	22.00	41.50	3.35 each

We guarantee everything we sell; you take no risk when you deal with us; safe arrival and satisfaction is our motto; customer is the judge. Reference: Bank of Ramer, Ramer, Ala.

The Farmer Apiaries - - Ramer, Alabama

"Where the Good Queens come from"

SELL YOUR CROP OF HONEY

TO

HOFFMAN & HAUCK, INC.

WOODHAVEN, N. Y.

NO LOT TOO LARGE OR TOO SMALL FOR US TO HANDLE

Mail Sample of Extracted, State Quantity and How Packed and We Will Make You Our Best Offer

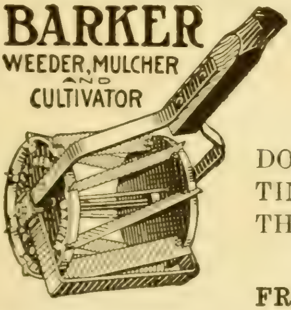
CONTAINERS FOR YOUR CROP

All Sizes, Glass or Tin

2½-lb. Pails, per case of 24	$1.80 each	Crates of 100	$7.00
5 -lb. Pails, per case of 12	1.65 each	Crates of 100	10.70
10 -lb. Pails, per case of 6	1.35 each	Crates of 100	17.00
White Flint Glass Quart Jars (3 lbs. honey) with gold lacquered screw caps, per case of 12			1.10
1 lb. Screw Cap Honey Glasses, per case of 2 dozen			1.35
5 Gallon Tins, used, good condition, 2 tins per case			.50

HOFFMAN & HAUCK, Inc. -:- -:- WOODHAVEN, N. Y.

BARKER WEEDER, MULCHER AND CULTIVATOR



Weeds and Mulches

In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER MANUFACTURING CO.
Dept. 10 David City, Nebraska

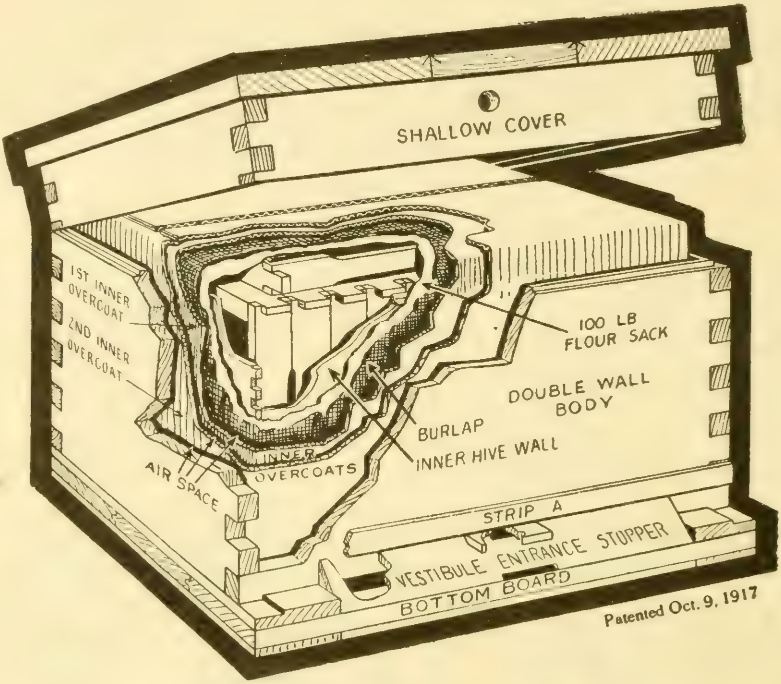
BARKER
MFG. CO.
Dept. 10
DAVID CITY, NEB.

Gentlemen. — Send me postpaid your free book and Factory-to-User Offer.

Name ____________________

State ________ Town ________ R. R. No. ________ Box ________

Winter Problem Solved by the Hive with an Inner Overcoat . .


SHALLOW COVER
1ST INNER OVERCOAT
2ND INNER OVERCOAT
100 LB FLOUR SACK
DOUBLE WALL BODY
BURLAP
INNER HIVE WALL
INNER OVERCOATS
AIR SPACE
STRIP A
VESTIBULE ENTRANCE STOPPER
BOTTOM BOARD
Patented Oct. 9, 1917

Furnished with Jumbo Depth or Standard Hoffman Frames

Plan to try out a sample shipment of these hives the coming Winter and be convinced of their efficiency and durability. Our Winter's loss the past Winter of 1919-20 was less than 5 per cent, and this was due to starvation and poor Queens. The bees were confined to the hives without a flight for about 120 days. These hives will Winter normal colonies perfectly under the most severe conditions. We have many testimonials too numerous to publish. The two Inner Overcoats with intervening dead air spaces and inner covering or blankets close up about the brood-nest is what does the trick. A person could have any amount of blankets fastened up on the walls of a room and still freeze to death if left in the center of the room without close-up protection or insulation. If you can eliminate your Winter Losses, think what it will mean to you.

Order early, as freight is slow and uncertain and will get more serious as Winter approaches. Do not fail to try out a sample shipment. Catalog and special circulars sent on request.

TIN HONEY PACKAGES

2 lb. Friction top cans, cases of 24
2 lb. Friction top cans, crates of 612
2½ lb. Friction top cans, cases of 24
2½ lb. Friction top cans, crates of 450
5 lb. Friction top pails, cases of 12
5 lb. Friction top pails, crates of 100
5 lb. Friction top pails, crates of 200
10 lb. Friction top pails, cases of 6
10 lb. Friction top pails, crates of 100

Ask for our special money-saving prices, stating quantity wanted.

A. G. Woodman Co., Grand Rapids Mich., U. S. A.

THE BASIS OF CONFIDENCE

What gives you confidence in a man or in a business firm, and in what they say and in what they make? It is just one thing--experience with them, day in and day out, year in and year out. Here is the experience of some of the customers of The A. I. Root Company:

Good for 48 Years.

"I purchased my stock and outfit of G. W. Gates of Raleigh, Tenn. Among the lot is a Langstroth-Root portico hive that has been in constant use since 1872. How is that for lasting?"

Memphis, Tenn. S. B. Myers.

Give Perfect Satisfaction.

"We have bought our bee supplies from the Root Company for the last 25 years. I represent the Bitter Root Stock Farm. We have 234 hives of bees. Your bee supplies have always been first class, given perfect satisfaction and came on time. **Your** dealing has always been scrupulously honest and fair."

Hamilton, Mont. Frank Meek.

The Same High Standard.

"I received $122 worth of supplies from your Council Bluffs branch about two weeks ago, but there was nothing unexpected about them. They were the same high standard of perfection as to quality, material, and workmanship as the Root's goods have been ever since I became acquainted with them in 1903. I will send another order to Council Bluffs in a few days."

Lohrville, Ia. Chas. L. Ruschill.

An Honest Man.

"I don't think I need a lantern to find an honest man. Readers of Gleanings in Bee Culture will not be surprised when I refer them to the head of The A. I. Root Company. I sent the firm a small order, including two cents extra for postage. Mr. Root used two cents to return my postage! Pretty safe to have dealings with folks like that, don't you think?"

Alton, Ind. Fred Johnson.

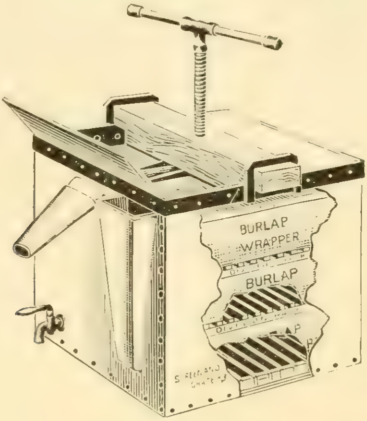
Hives that last for a half century and beekeeping goods of the guaranteed high quality manufactured by us and honestly sold are not high priced. They are cheaper than any other agricultural implements made today, for they last so much longer. It is the stuff in them and the lasting qualities that determine the value of goods.

EARLY ORDER CASH DISCOUNTS

Take advantage of our early order cash discounts: August, nine per cent: September, eight per cent: October, seven per cent: November, six per cent: December, five per cent. Send for our "Year End Special" price sheet.

The A. I. Root Company, Medina, Ohio

WAX IS MONEY



THE HERSHISER WAX-PRESS

Do you know that nearly every dealer who extracts wax from old combs for beekeepers or for his own use to make into bee comb foundation uses an extractor of the Hershiser type?

This is because it is the most efficient wax-extractor on the market which will handle quantities of old combs or cappings at one time. Less than one per cent of wax is left in the slumgum.

The Hershiser wax-extractor tank may be used to heat or liquefy extracted honey as it holds four 60-pound honey cans. Many beekeepers use it to drain cappings and to work wax into big cakes.

Sold by Distributers of Lewis "Beeware."
Write for free booklet on this press.
Early Order cash discount 8 per cent in September.

Look For

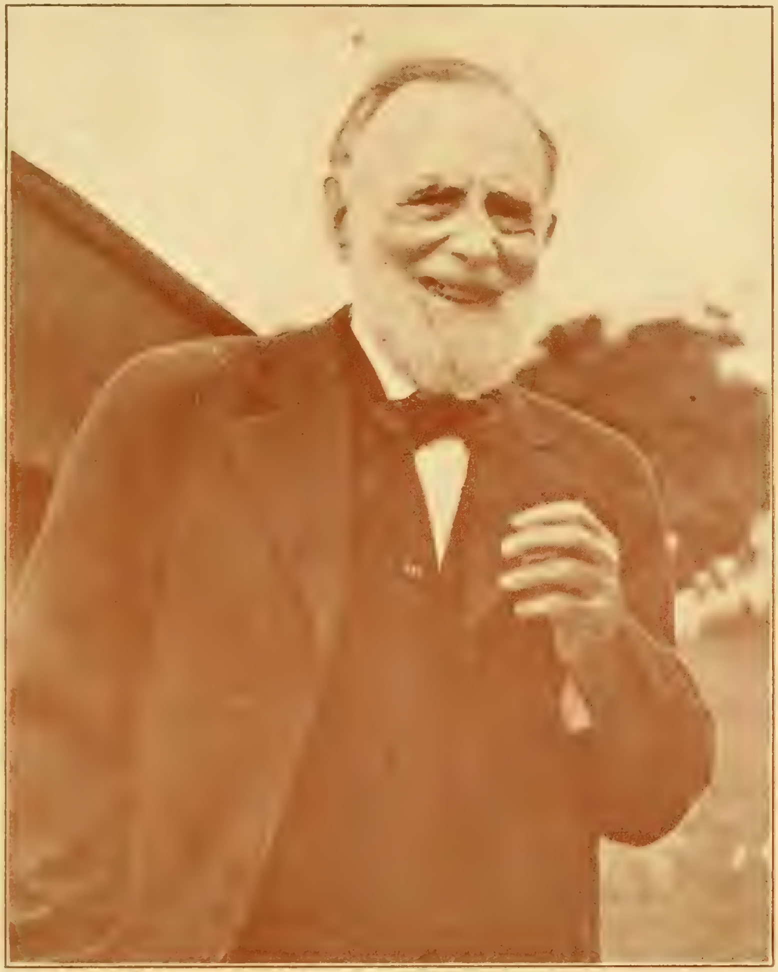
BEE HIVES AND APIARIAN EQUIPMENT
BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. U.S.A.
MAKES THE FINEST.
COPYRIGHT, 1916, BY G. B. LEWIS COMPANY

This Mark

G. B. LEWIS COMPANY, WATERTOWN, WISCONSIN

Branches and Distributers Everywhere.

Gleanings in Bee Culture



Caught by the camera in a laughing mood, Aug. 27, 1920.

NOW IN THAT BETTER WORLD

"Anyway, I've had a good time in the past. If the next world is any better than this---and I am sure it is---it must be a very fine world."---Dr. Miller, in Gleanings for January, 1920.

VOL. XLVIII October, 1920 NUMBER 10

WAREHOUSE JUST BEING COMPLETED TO

STORE YOUR HONEY

Let us store or sell it for you

-:-

Our Factory Has Been Enlarged to Insure More Prompt and Efficient Service.

-:-

Full Line of

SUPPLIES & FOUNDATION

all the time.

-:-

Always in the market for

WAX AND HONEY

Send in samples.

MILLER BOX MFG. CO.
201 NORTH AVENUE 18
LOS ANGELES, CALIFORNIA

"Griggs Saves You Freight"

TOLEDO

Now for the 1920 Honey Crop

We will buy it, both Comb and Extracted

We want especially White Orange, White Sage. White Clover, Basswood. Raspberry.

Write us what you have, sending samples and prices asked in first letter

Second-hand 60-lb. Cans

These cans used only once, packed in good cases; 10 cases, 70c; 50 to 100 cases, 65c; 100 to 500, 50c

Beeswax Wanted

GRIGGS BROTHERS CO.
Dept. No. 25 Toledo, Ohio
"Griggs Saves You Freight"

WHEN YOU THINK OF BEEKEEPERS' SUPPLIES

THINK OF INDIANAPOLIS

We carry a complete line of Root's goods and we solicit your trade. Our slogan: Courteous treatment and prompt service. Catalog for the asking.

THE A. I. ROOT COMPANY (Indianapolis Branch) 873 MASS. AVE.

BEEKEEPERS' SUPPLIES

New prices are now in effect, and a new condensed price list giving latest prices is nearly ready for distribution. Send for it.

HONEY AND BEESWAX

We are using increasing quantities of choice honey to pack in glass, and can also use quantities of beeswax in preparation for next season. We are here to serve you.

THE A. I. ROOT COMPANY
OF CALIFORNIA

52-54 MAIN ST.
SAN FRANCISCO, CALIF.

1824 EAST 15th ST.
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WHEN THE BEES STING,

You'll Need an "Ideal Bee Veil"--True to its name.
$1.95 postpaid in U. S. A.

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Send us a sample of your extracted honey. We also buy comb honey. Tell us how much you have and what you want for it. We pay the day shipment is received.

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We pay you the highest market price for rendered wax, less 5 cts. per pound for rendering charges. Our rendering process saves the last drop of wax for you. "Put your name on all packages."

THE FRED W. MUTH CO.,

"The Busy Beemen"

CINCINNATI, - OHIO.

1920 QUEENS 1920

A colony of bees with a poor queen is worth the hive and fixtures. A colony of bees with a good queen has no limit in value, the honey flow alone being the determining factor. I am using my thirty-five years of beekeeping and queen-rearing experience to produce the best that can be produced, and sell at a figure that will sustain the high quality of my queens.

PRICES

One, $2; three, $5.50; six, $10; twelve, $19. All amounts over one dozen, $1.50 each. I sell only untested queens and make a specialty of this line. I select no queens, but try to have them all so good that there is little chance for selection. 1920 circular now ready. Season opens April first.

P. C. CHADWICK KERN COUNTY **DELANO, CALIF.**

Lewis Bee Supplies—Dadant Foundation

A full line of supplies for the practical bee men at your command. Additional information to beekeepers gladly supplied upon request.

A Post Card Will Bring Our Catalog---Write Dept. C.

Western Honey Producers -:- Sioux City, Iowa

HONEY *HONEY*

HONEY WANTED

Send us a sample of your honey if extracted, state how put up and your price. We are also buyers of comb, can use unlimited quantities if quality and price are right. We remit the same day goods are received.

C. H. W. WEBER & COMPANY

2146 CENTRAL AVE. CINCINNATI, OHIO

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"SUPERIOR" FOUNDATION

HONEY CANS

We are at your service

Beeswax Wanted at Top Market Price

Superior Honey Company -:- Ogden, Utah

(MANUFACTURERS OF WEED PROCESS FOUNDATION)

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We have a large number of customers in all parts of the country, who find that they always get prompt and courteous attention to their requirements, four per cent compound interest, and unquestioned safety when they bank with us BY MAIL.

Make this bank your bank—write for detailed information.

THE SAVINGS DEPOSIT BANK Co.

A.T.SPITZER, Pres.
E.R.ROOT, Vice Pres. E.B.SPITZER, Cash.

MEDINA, OHIO

HONEY MARKETS

The present honey market is not a strong one, as will be seen by reference to the quotations furnished by the Bureau of Markets and printed below. An unusual dullness of the fall season prevails, and the falling price of sugar has somewhat adversely affected current honey prices.

U. S. Government Market Reports.

HONEY ARRIVALS, SEPT. 1-15.

MEDINA, O.—10,275 lbs. from Ohio arrived. Not previously reported Aug. 24, 6,327 lbs. from Ohio arrived.

SHIPPING POINT INFORMATION, SEPT. 15.

LOS ANGELES, CALIF.—Light wire inquiry, demand slow, carloads f. o. b. usual terms: Few sales, per lb., white orange and sage mostly 16-18½c, some high as 20c; light amber sage 16-17c; light amber alfalfa 13-15c. Beeswax, 40-44c. Dullness of honey market is assisted by weakness of sugar market. Some honey is being marketed in small containers. Glass jars and 5-10-lb. cans are reported moving well.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

BOSTON.—No arrivals since last report. Demand and movement very light, market steady. Sales to jobbers, comb: New York, 24-section cases white clover, old crop, few sales $9.00. Beeswax: Market steady. Domestic, light 40-42c per lb.

CHICAGO.—Since last report, 1 car California, 1 car Idaho arrived. Demand and movement slow, market weak and unsettled. Sales to jobbers, extracted: per lb., Idahos, Californias, and Colorados, alfalfa and clover, white 18½-19½c, light amber 17-18c. Comb: Idahos, Californias, and Colorados, clover and alfalfa, No. 1, light $7.00 per 24-section case. Buyers are purchasing sparingly at shipping points owing to wide difference in prices asked for same quality of stock in same section by different growers and dealers. Beeswax: L. C. L. Receipts liberal, demand and movement moderate, market steady. Sales to jobbers, per lb., Oklahomas, Texas, and Colorados, light 40-42c, dark 35-39c.

CINCINNATI.—1 car California arrived. Supplies liberal, practically no demand or movement, no sales reported, all honey being bottled. Beeswax: Supplies moderate, demand and movement good, market firm. Sales to jobbers, average yellow 44-46c per lb.

CLEVELAND.—Supplies light, demand slow, movement draggy, market slightly weaker. Sales direct to retailers, Extracted: per lb., 60-lb. tins Colorado and Utah, light amber alfalfa 16-18c, mostly 16-17c; white sweet clover 17-19c: California, white orange blossom 19-21c. Comb and beeswax: Supplies very light, too few sales to establish market.

KANSAS CITY.—No carlot arrivals since last report. Supplies moderate, demand and movement moderate, market dull. New stock, comb: Iowa, alfalfa and clover, light mostly $8.00 per 24-section case. Extracted: Colorado, light amber alfalfa, No. 1, mostly 22c per lb.

NEW YORK.—Since last report, 420 lbs. from Maine arrived, supplies moderate, demand and movement slow, market dull. Sales to jobbers and large wholesalers, extracted: domestic, per lb., Californias, light amber alfalfa 14-15c, white orange blossom and white sage 18-19c, few sales 20c: sweet clover 17-18c, mostly 17½c; West Indian, refined, per gallon, $1.20-1.45, mostly $1.25. Beeswax: No arrivals reported, supplies moderate, demand and movement slow, market steady. Sales to jobbers and large wholesalers, per lb., South American and West Indian, crude, light 28-30c, dark 24-26c.

MINNEAPOLIS.—Supplies light, demand and movement slow, market dull. Sales direct to retailers, comb: Colorados, sweet clover, No. 1, white, 24-section cases $7.00. Extracted: per lb., western, 60-lb. cans light amber alfalfa 20-21c, white sweet clover 21c.

PHILADELPHIA.—Since last report, approximately 36,000 lbs. from California, 1,400 cases from New York arrived. Demand and movement moderate, market steady. Sales to jobbers, extracted: per lb., California, white orange blossom 21c; New York, white clover 19c. Beeswax: No sales reported.

ST. LOUIS.—Receipts and supplies very light, demand and movement slow, market dull. Sales to jobbers, Comb: No sales reported. Extracted: Few sales. Mississippis and Arkansas, light amber, mixed clover and various flavors in 60-lb. cans 16-18c per lb. Beeswax: No arrivals, supplies very light, demand and movement slow, market weak. Sales to jobbers, prime yellow 30-31c per lb.

ST. PAUL.—Supplies very light, demand and movement slow, market dull. Sales direct to retailers, Comb: Minnesotas, No. 1 white clover, 24-section cases $8.00.

George Livingston,
Chief of Bureau of Markets.

Special Foreign Quotations.

LIVERPOOL.—During the last month there has been a little more inquiry for extracted honey, the total sales amounting to 560 barrels. The value of extracted honey in American currency is 14 cents per pound. In beeswax, the market continues dull. The value in American currency is 37 cents per pound.

Liverpool, England, Sept. 7. Taylor & Co.

CUBA.—Honey is quoted at $1.30 a gallon and yellow wax at 34 cents a pound.

Matanzas, Cuba, Sept. 7. Adolfo Marzol

Opinions of Producers.

Early in September we sent to actual honey-producers, scattered over the country, the following questions:

1. In your locality what part of the honey crop is already out of the hands of the producer?
2. At what wholesale price is honey selling in your State?
   Extracted honey.
   Comb honey.
3. At what retail price is honey selling in your State?
   Extracted honey.
   Comb honey.
4. What is the general condition of the market?

Answers, as condensed by the editor, are as follows:

CALIFORNIA.—About 80-90 per cent of crop out of hands of producer. Extracted honey is selling at retail at 20-35c; comb at 35-45c. I have seen no first grade on the market. Market is slow—more so than usual. Heretofore I considered the slow market due to presidential campaign. Some consider the cause to be the lower market in sugar.—M. H. Mendleson.

CALIFORNIA.—Ninety-five per cent of the crop is out of the hands of producers. Extracted honey at wholesale is selling at 20c; at retail, 25-35c. Comb, at wholesale, $7 a case; at retail, 40c. The market is weak.—L. L. Andrews.

COLORADO.—The honey situation still appears to be largely in the nature of a waiting game. The larger producers still hold most of their honey and the buyers are not active. Probably not over 25 per cent of the crop in this part of the State has left the producers' hands. I know of only one car of honey shipped from the western slope. Small lots of honey have been sold at 18 to 20 cents for extracted, and $6 to $7 for comb. Retail prices, from 20 to 30 cents for extracted, and 25 to 35 cents per section for comb. The local demand is very good, and a large proportion of the crop could be disposed of in this way. The latter part of the season has not been as good as expected, and the crop, as a whole, will be considerably less than that of last year.—J. A. Green.

FLORIDA.—We haven't had much honey to sell so far, but cabbage palmetto is getting very good at present. Extracted honey is selling at wholesale at 18c; at retail, some as high as $1.00 per quart in glass. Demand is good.—Ward Lamkin.

IDAHO.—Probably 75 per cent of the comb honey and 5 per cent of the extracted are out of the hands of the producer. Extracted is selling at wholesale at 20c; at retail, 50c for pint jar. Comb honey, at wholesale $6.75 to $7.00 for fancy; at retail, 30c and upward. Market good for comb, slow for extracted.—E. F. Atwater.

ILLINOIS.—None of crop out of producers' hands. Extracted honey is holding at wholesale for 20c; at retail, 25c. Comb, at wholesale, 30c; at retail, 35-40c. No movement yet, only in small way to consumers.—A. L. Kildow.

INDIANA.—Practically all honey is sold to consumers and retail dealers, being supplied the year round; hence only a small part of the crop of 1920 is disposed of. Extracted honey is selling to retailers at 25c in 60-lb. cans, 28-30c in pails; at retail, 35c in pails, in 15-oz. jars 45c. Comb honey, to retailers, $8.40 per case; at retail, No. 1, 45c. About the usual demand. Crop above normal. —E. S. Miller.

IOWA.—One-fourth of crop out of producers' hands. Eighteen cents offered for extracted honey at wholesale, one lot selling at 25c; at retail, 25-30c. Comb honey at retail sells at $7.50 to $8.40. Selling quite freely on home trade.—Frank Coverdale.

KANSAS.—Perhaps one-half of crop is out of hands of producer. Extracted honey is selling at wholesale at 25c; at retail, 35c. Comb, $8 to $9 at wholesale; at retail, 45c.—O. A. Keene.

KANSAS.—One-fourth to one-half of crop is sold. Extracted honey is selling at wholesale for 25-27c, at retail 27-30c. Comb honey, at wholesale $7-$8 per case of 24 sections; at retail, $8 to $9 per case. Market is good.—J. A. Nininger.

MASSACHUSETTS.—One-tenth of crop is sold. Have heard of no sales of extracted honey at wholesale. It is selling at retail for 50-60c in glass. No comb. Market is rather slow since price of sugar dropped.—O. M. Smith.

MICHIGAN.—One-fifth of crop out of hands of producer. Extracted honey is selling at wholesale for 22-28c; at retail, 28-40c. Comb, at wholesale, 30-38c; at retail, 40-50c. Wholesale market is rather inactive; retail market good, with increasing demand at fair prices.—B. F. Kindig.

MISSOURI.—Extracted honey is selling at wholesale at $3.00 per gallon; at retail, $3.50 to $4.00 per gallon. Comb honey at wholesale, $6.75 to $8.40; at retail, 45-50c per section. The market is dull for this time of year.—J. W. Romberger.

NEBRASKA.—Not any part of the honey crop is out of the producers' hands. Extracted honey is selling at wholesale at about 22c; at retail, 30-35c. Comb honey, at wholesale 25c; at retail, 45-50c. The market is rather slow.—F. J. Harris.

NEW JERSEY.—No honey produced here this season. At wholesale extracted honey is selling at 18-25c; at retail, 50c pound jar and $1.25 quart jar. Comb honey at wholesale, 18-25c. The market is dull.—E. G. Carr.

NEW YORK.—Extracted honey selling at wholesale 20-25c; at retail averaging 35c, some at 50c. Comb honey selling at wholesale $8 to $9.50 per case of 24 sections; at retail, 40-50c. Market very unsettled.—Geo. H. Rea.

NEW YORK.—About two-thirds of crop out of hands of producer. Extracted honey is selling at wholesale at 16-18c; at retail, 25-35c. Comb honey at wholesale around $8 a case; at retail, 45c. Market is good on comb, bad on extracted.—F. W. Lesser.

NEW YORK.—Probably 25 per cent of crop sold. Trade mostly retail. Not much wholesale demand. Extracted honey is selling at wholesale for 20-25c for light; at retail 25-40c. Comb, $7.20 to $8.50 per case of No. 1 and fancy at wholesale; at retail, 40-60c. Retail demand is good. Wholesale market weak. Producers not at all anxious about selling.—Adams & Myers.

OHIO.—About one-fourth of crop is sold. Extracted honey is selling at wholesale at 25c; at retail, 30c. Market not very active.—Fred Leininger.

TEXAS.—Seven-eighths of crop is out of hands of producer. Extracted honey is selling at wholesale 18-20c; at retail, 30-35c. Bulk comb, at wholesale 24-30c; at retail, 35-40c. Local market good; no local supply.—H. B. Parks.

TEXAS.—None of the honey crop in the hands of the producer. Extracted honey is selling at wholesale at 17c; at retail, 20c. Comb honey at wholesale 20c; at retail, 23c. Condition of market is good.—J. N. Mayes.

EAST TEXAS.—About 75 per cent of crop out of hands of producer. Extracted honey selling at wholesale at 15-20c; at retail, 20-30c. Market firm.—T. A. Bowden.

TEXAS (Lower Rio Grande Valley).—Market unsettled at present time on account of sugar prices dropping.—A. Lynn Stephenson.

UTAH.—Ninety per cent of my 15 tons is sold at 20c to jobbers. Extracted honey is selling at wholesale at 14-16c; at retail, 25-30c. Comb, at wholesale, $5.50 to $6; at retail, 25-33c. Market is panicky, some producers trying to let go their crop, feeling that all prices will drop and that honey will have to bear its share of the burden. —M. A. Gill.

VIRGINIA. — Extracted honey is selling at wholesale at 25-35c in bottles; at retail, 40-55c in bottles. Comb honey at wholesale, 25-35c, lb. section; at retail, 40-50c, lb. section. Market movement slow, retailers stocked.—J. H. Meek.

WISCONSIN.—Only a few scattered beekeepers have disposed of their entire crop. A great deal of honey is being sold locally. A few beekeepers have sold extracted honey as low as 20c wholesale. The majority are holding at 25-30c. The retail price is 30-35c. As to comb honey, I have heard of one or two beekeepers who are selling at 25c wholesale. The general price seems to be 35c and 40c, retailing at 40-50c. The general condition of the market seems to be good.—H. F. Wilson.

SPECIAL NOTICE BY A. I. ROOT.

"ALL'S NOT GOLD THAT GLITTERS."—POTATO ROT.

On page 495 of our August issue I mentioned planting a bushel of the Canadian potatoes pictured on the opposite page. Well, I was rejoicing in the promise of a splendid crop at the rate of over 200 bushels per acre of great nice potatoes; but just as I began to dig them I found one or two in a bushel that were rotten. Later the number of rotten ones increased, and then I overhauled those put in the cellar, and they were also rotting. They were promptly taken out of the cellar and exposed one whole day to the hot rays of the September sun, put back in *cold cellar* in open slatted potato-crates, and the trouble ceased. The bacteria of the rot, we are told at the experiment station, are killed by the heat and light of the sun. Burpee's Extra Early and Early Ohio, side by side, had no rot.

Medina, O., Sept. 23, 1920.

SUBSCRIPTION NOTICE.

After Oct. 1, 1920, no subscriptions for Gleanings in Bee Culture will be received at less than the one-dollar-a-year rate, the two-, three- and five-year-in-advance low subscription rates being withdrawn. Gleanings in Bee Culture.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

Editor, E. R. Root, Medina, Ohio; Managing Editor, H, G. Rowe, Medina, Ohio; Publisher, The A. I. Root Co. Stockholders holding 1 per cent or more stock as follows: Boyden, A. L.; Boyden, Carrie B.; Boyden, Constance M.; Boyden, L. W.; Calvert, J. T.; Calvert, Maude R.; Root, A. I.; Root, E. R.; Root, H. H.; Root, Susan. There are no bondholders, mortgagees, and other security holders, holding 1 per cent or more of total amount of bonds, mortgages, or other securities.

H. G. Rowe, Mng. Editor.

Sworn to and subscribed before me this 18th day of September, 1920. H. C. West. Notary Public.

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Untested, $1.25; $12.00 per dozen
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Well made of the best, soft, light cypress which defies decay. Bottoms, covers, hive bodies, hive stands, supers, frames, and foundation. Special discounts on large orders for bottoms, covers, hive bodies and foundation.

Should you desire your outfit cut according to your specifications, write us. Parties desiring large quantities of goods should send for sample of items wanted which will be furnished at moderate price.

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⁂

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MAYHEW, MISSISSIPPI

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By selling your honey in your local market, you not only get the better price but you make your future trade secure. To do this, you need Containers suitable for the trade. We offer you these packages as follows:

1-lb. Round Glass Jars, 24 to the case.
Weis Fibre Containers in six sizes, from 6 oz. to 5 lbs.
Friction Top Tin Honey Pails, 2½-lb., 5-lb., and 10-lb. sizes.
60-lb. Cans, two cans to the case.
Comb Honey Shipping Cases in 12-lb., 16-lb., and 24-lb. sizes.

Seven per cent Early Order Cash Discount for October orders. An additional Quantity Discount for large orders.

Better order your supplies during fall and winter months.

M. H. Hunt & Son
510 North Cedar Street
Lansing, Michigan

WE CAN NOT STOP

While the bees work on fall flows carloads of lumber are piling up in our yards. No shortage must delay shipments next year.

Even in the dull season our organization of experts must be retained to maintain the quality of Lewis "Beeware" at all times.

We can not stop lest beekeepers be disappointed. Help us avoid disappointing you next May. Order now. It will pay you well.

Order in October for next year.
Get the extra 7 per cent discount now.
Cash must accompany such orders.

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BEWARE
WHERE YOU BUY YOUR
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WATERTOWN WIS. USA
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This Mark

Do you know the principles of wintering bees successfully? Get "How to Winter Bees Outdoors," a booklet for 5c. or send for the complete set of 15 Lewis "How" booklets, price 75c.

G. B. LEWIS COMPANY, WATERTOWN, WISCONSIN
Makers of Lewis "Beeware."
Branches and Distributers Everywhere.

GLEANINGS IN BEE CULTURE

OCTOBER, 1920

Geo. S. Demuth to Join Our Editorial Staff.

IT IS with very great satisfaction that we announce that Geo. S. Demuth, assistant to Dr. E. F. Phillips in the department of Bee Culture Investigations, Washington, D. C., is to become the active editor and directing hand in Gleanings in Bee Culture. It gives us this great satisfaction to announce Mr. Demuth's coming to Gleanings, because we believe it will be welcomed as good news by our every reader, and because we believe Mr. Demuth to be one of the best-informed beekeepers and investigators in this country. Not only this, but he is a very successful beekeeper himself, year in and year out, and he has the confidence of beekeepers from coast to coast, and from Canada to the Rio Grande, as very few American beekeeper authorities have ever had. He measures full up to a leader in beekeeping.

A personal word will be pardoned the writer, who for 35 years has borne the responsibility for the editing of this journal. In giving over the chief responsibility for its editorship to other hands, I am not giving up my interest in Gleanings' welfare nor withdrawing from its editorial staff. I expect at least to fill the part of what might be called field editor, writing for it and gathering new material for its columns in my extensive travels over the country. I shall also counsel as to its policies and features at all times, and retain a keen interest in its every issue.

But with the oncoming of the years, new and ever increasing duties in connection with The A. I. Root Company's large business affairs and an ever more insistent call to be out in the field and there keeping touch with every beekeeping interest, have more and more encroached upon my time and energies. So it has seemed advisable to delegate to other hands the guidance and first-hand work of editing Gleanings.

Mr. Demuth will come to the head of Gleanings editorial staff about Nov. 1, next, and will have got comfortably fitted to the editorial chair by the beginning of a new year. I am certain that every American beekeeper will welcome him to his new position of great usefulness at the editorial helm of Gleanings.

E. R. Root.

Handling This Year's Honey Crop.

THE AVERAGE price at which honey is now quoted by the Bureau of Markets, is slightly higher than last October; but, as is unusual at this time of the year, the movement is slow and the market dull. This, of itself, is no cause for worry to the honey-producer; but there are a few new factors that should be recognized.

The present financial condition of the country, the decreasing price of sugar, and the good honey crop this year have caused some producers to sell their entire crop at a first-offer price. This flooding of the market has, of course, somewhat depressed the price of honey. A great many of the beekeepers, because of the high prices of other commodities, feel that they cannot afford to sell under present conditions and are holding for prices as high as last year or higher.

It is quite right that producers should obtain such a price; but, with the present crop of honey and the wary attitude of wholesalers who have not yet recovered from the jolt that many of them got in the sudden decline of sugar prices, it is doubtful whether beekeepers should hold their honey for wholesale disposal.

This year we believe is unusual, and, as we have previously said, whether or not the beekeeper obtains a fair price for his honey will this year depend upon himself more than ever before. The solution to the whole problem, as we see it, is the local distribution of the producer's crop thruout his own and neighboring towns. No matter how good one's local trade may be, the chances are that if it is given business-like attention, it may easily be doubled or trebled this year. Systematic advertising thru the local papers and regularity in canvassing will do wonders in disposing of the crop. It has always been a great mistake for beekeepers to dispose of their honey all at once. The honey should be sold gradually, if sold at all this season, and the price thus stabilized. A beekeeper who produces a fine grade of honey and works up a dependable trade that remains active thruout the year, has a valuable asset that cannot be taken from him. Let beekeepers not be caught napping, but let them obtain what their honey is actually worth.

Necessary to Successful Cellar Wintering.

SOME ONE ASKED G. F. Demuth at one of the short course meetings in Columbus, O., what the proper temperature of a bee-cellar is. His prompt answer was, "that depends." The Government Bureau of Entomology has proved that the most quiescent state of a cluster of bees on combs in a hive—a state where the bees eat the least stores and winter the best—is about 57 degrees Fahr. outside the cluster in the hive. Getting down to the exact question Mr. Demuth said that the temperature on the inside of the cellar should be such as to favor a temperature of 57 degrees inside of the average hive. He recommended placing a thermometer on the bottom-board of a few of the hives. If the temperature of the bottom-board is above 50 degrees, but below 57, the colony cluster should be somewhere about 80; or, in other words, the temperature of the cellar should be regulated according to the size of the **average colonies** and the size of the **average entrances.** Where the colonies are all strong and the entrances small, the temperature might be much lower than where the reversed conditions would apply. In the former case, 43 degrees might be about right for the cellar; in the latter case, 50 might not be too high.

Mr. Demuth's answer reveals the fact that, on the subject of cellar temperature and ventilation, we all may have been leading each other astray. The exact temperature of the bee-room is not vital; but the temperature of the hive is, and the nearer it is to 57, the better. It is not practicable to run a thermometer down among the bees, because then the temperature would immediately rise. The only thing to do is to test the temperature of the air **between** the bottom-board and the bottoms of the frames. Should that temperature show close to 57 or above, the cellar should be cooler or the entrances greatly enlarged; if 52, the cellar temperature is about right provided the colony is an average one.

In the average bee-cellar it is not always easy to regulate the temperature with exactness. If the temperature is a little high, the entrances of the hives should be larger. If it is a little low, the entrances should be smaller. Sometimes when the temperature is too low it is advisable to close both the cellar ventilators, when the natural heat of the bees will raise the temperature in the cellar. In this connection the Bureau has experimented to show that the ventilation in a bee-cellar is valuable only as it affords means for raising or lowering the temperature—not because the bees need fresh air.

The work of Dr. Phillips and of Mr. Demuth, of the Bureau of Entomology, on this point is very interesting. A careful reading of the preceding will show **why** one man favors a low temperature in a cellar and another a high one, and yet both may have equally good results. It also shows why some favor ventilators and some do not, because the vital thing is the temperature of the cluster itself rather than that of the cellar.

* * *

Sweet Clover At the Top Of the List.

A FEW years ago we were accustomed to think of alfalfa as the main source of honey in the Rocky Mountain States, if not the main honey plant in the entire United States. During the last few years conditions have changed. We must now put sweet clover at the top of the list for actual quantity, and in quality it is second to none. It has come to pass that in some of the alfalfa States sweet clover will run about fifty-fifty with alfalfa in aggregate production. In the dry-farming areas it would stand about seventy-five to twenty-five of alfalfa. There are some portions of the United States where sweet clover is produced as an exclusive crop. Over much of the territory of the Eastern States north of the Ohio River, it yields no surplus, but is valuable as a brood-booster.

A few days ago we ran across an instance of the increasing popularity of sweet clover only a few miles from our home. A farmer, who had come here from a much better farming section, had purchased a rather stiff clay farm of about 200 acres. We asked him how he farmed such land after being accustomed to much better soil. His reply was: "Sweet Clover." In very fact he was making sweet clover the one big, essential crop on his 200 odd acres of clay land.

In northern Alabama and Mississippi and a good deal of the mountain areas of the Eastern States the legume is a very important honey plant. In Oklahoma, Kansas, and Nebraska it is going to the front as it never did before. If the new annual that A. I. Root talks about in his department is as good a producer of nectar as the two biennials and if that new annual can be grown in localities too hot for either of the biennials, we may expect a much larger percentage of sweet-clover honey.

When we look back to the days when we put out our first sweet-clover booklet, days when town councils and state legislatures tabooed sweet clover, days when even experiment stations gave it scant recognition, days when we were persecuted because we tried to spread the truth regarding this wonderful legume, we can only wonder that the transformation has taken place so rapidly as it has. There is scarcely an experiment station that does not extol the praises of sweet clover. It is endorsed by the Agricultural Department of Washington, D. C. Laws legislating it out of existence have been repealed and today some lands that won't produce hardly anything else are now producing sweet clover, fat cattle, and last but not least, milk and honey.

DR. C. C. MILLER

Personal Reminiscences of the Editor, who had Known him for Nearly Forty Years

By E. R. Root

A GREAT voice has been stilled; but those bright and breezy sayings from the Sage of Marengo, always labeled with smiles, will live after. Such a life can not die; but all that is earthly of Dr. C. C. Miller passed away on Sept. 4.

When he was obliged to give up his department of Stray Straws some months ago, on account of a severe sickness and his advanced age, there came a feeling over me that I must see him once more before he passed from the scenes of earth, feel his handshake, and see that face so beaming with smiles.

As I was scheduled to be present at a Chautauqua held at Madison, Wis., on Aug. 16 to 20, I decided that on my return I would pay Dr. Miller a visit between trains, during which I would take some more pictures of him; for I felt sure that the beekeeping world would want to see him in his ninetieth year. On arriving at the Chautauqua I told Dr. E. F. Phillips that I purposed to go and see the man who wrote Stray Straws, and asked him if it would not be possible for him and Mr. Demuth to go along with me. Precisely that thought was in the minds of both of these men, and we were not long in making up a little party to motor from Madison to Marengo. This party was made up of Dr. E. F. Phillips, Geo. S. Demuth, H. F. Wilson, and the writer.

We had expected to see Dr. Miller showing his age, and that the once virile face and form would be infirm with years; but we were agreeably surprised to see apparently the same man with the same vigor of body and mind that I had seen 35 years ago. He seemed to be at his very best, and members of our party all agreed that his mind was as alert and keen as ever. I think the average person would have said that he was not over 70, and probably along in his 60's.

But that wonderful smile that betokened the happy nature within must have camouflaged whatever of bodily infirmity there might have been. And surely there was some, because he died just two weeks to a day after our visit. I said, "Doctor, I'd give 20 cents for a picture or two of you;" and instantly he came back with a laugh, saying: "Beg pardon. I'll have to charge you 35 cents this year." At this the camera clicked, and the result is shown on the cover page of this Gleanings.

I had told him I had come to convey the best wishes of my dear old father, and it gave me pleasure to tell the Doctor of the joy that his letter (published on page 621 of this issue) gave to A. I. Root. I further added that father wanted to pay him a visit, and hoped that he might yet do so. I shall never forget how that smile seemed to fade a little, and then how it came back with its wonted sweetness in these words:

"I should dearly love to see your father again, for he and I are about the only ones left of the old group. But tell him he must come soon, as sometimes I think I have not many days to live. If I do not see him on this side, I surely shall on the other side."

As he said that, the camera clicked again. I took of him that day some two or three dozen pictures, and in future issues I hope to show more of them, as it will take a good many pictures to show the many sides of this wonderful man.

At this time I wish to give a few personal reminiscences, beginning with the time I made my initial bow to the beekeepers in the early 80's, or about the time that my father's health broke down and his editorial mantle was thrown on me. It was at that time I needed the help both of my father and of Dr. Miller. I needed Dr. Miller because father's enthusiasm was fast drifting toward gardening and greenhouses and other like pursuits; but not so with Dr. Miller. I remember how, after I had come back from a trip among the beekeepers of New York, I thought I had gathered some new ideas. I had felt that the hives and appliances we were then making would have to be modified to fit commercial beekeeping not only on a large but on a small scale. For example, I became satisfied that father's beveled edge of the Simplicity hive and the metal-corner frame would have to give way to the square edge and the all-wood frames that were then coming into use. Naturally father was conservative. To settle the question we agreed to call in Dr. Miller. To make a long story short, the dovetailed hive was first launched on the market in 1889. Slowly it crowded out all its competitors until it is now the standard of all the hive-manufacturers in the country.

In those early days I needed Dr. Miller's help again in launching the thick-top frame. In fact, Dr. Miller had proposed it to me himself, saying that it was a great step forward, as it would effectually rid the hive of burr-comb, and it did. With Dr. Miller's support I put this in the catalog, and now the thick-top frame is in almost universal use among beekeepers.

About this time, also, I advocated self-spacing frames, and especially Hoffman frames. Here Dr. Miller expressed his doubts. He later came to see the value of the self-spacing feature in the form of nails as spacers; but he never really accepted the Hoffman frame, now in general use.

When the Porter bee-escape was first put on the market, Dr. Miller was again doubtful; but experience soon showed to him that it was a great invention for clearing bees from the supers.

During the time that the divisible-brood-chamber hives were being exploited in the 80's, I remember that Dr. Miller was skeptical, saying he doubted if the principle were correct. Mr. Heddon, Mr. Hutchinson, Mr. Taylor, and scores of other leading beekeepers at that time advocated the principle of handling hives rather than frames, and it certainly did look good; but Dr. Miller said to me privately: "You will do well, Ernest, not to push it," and we never did. The years that have gone by since then have proved that it was a step backward. It is not surprising, in the light of our present knowledge, that those who advocated and used this divisible-brood-chamber system of honey production had so many failures that they began to think that the seasons were to blame. They never seemed to think it could be the hive with its little force of bees.

Experience during the last 15 or 18 years has shown that, instead of dividing up a brood-nest, we should double them up and make strong, populous colonies. Dr. Miller, some 20 years ago, supported my contention that a good queen needs at least two eight-frame hive-bodies for breeding purposes. I advocated at the time a double brood-nest—not a brood-nest split in the middle or in halves, as advocated by Mr. Heddon. Just at the beginning of the honey flow, when running for comb honey, the plan was to reduce the breeding room to one-chamber, forcing all the bees into the supers. Dr. Miller made this a practice for years. He never had any trouble about getting bees into the supers, for the reason that he had the hive so "chock full," as he said, that they simply **had** to go into the sections. He was getting crops of honey right along when the users of divisible-brood-chambers were complaining of poor seasons one after another. Likewise, Dr. Miller always supported the Dadants in their advocacy of large brood-nests, or, as he used them, a double brood-nest of nearly the same capacity.

Dr. Miller was almost the first one to see that horizontal wiring, while it made beautiful flat combs, as smooth as boards, resulted in the foundation stretching near the top-bar, thus making the cells, when drawn out, too large for the queen to lay in. We therefore find him, some 20 years ago, advocating wood splints. While, possibly, this is not the best means to prevent stretching, it is a good one, and goes to show how Dr. Miller was looking forward, and how he was ahead of the times.

The grand old man of beedom never claimed to be an inventor. He never claimed he had any secrets, for he had none. His great service to the bee world was in discovering practical methods for producing more and better honey with the appliances that the beekeeper has. He never was in favor of throwing away old hives or apparatus as was Mr. Heddon; and therefore one would never find anything in the Doctor's apiary but standard hives, standard Langstroth frames, and standard equipment sold by every supply dealer in the country. While he did not invent, he did pick out of the mass of crudities inventions that he approved.

I have just said that Dr. Miller did not pretend to be an inventor; but there are some things that bear his name—the Miller feeder, for instance; but he was generous enough to say that Mr. Warner improved it so that it was better than his own feeder. An introducing-cage also bears his name. This was not exactly an invention, but it was improved so that it is really a practical introducing-cage, one that is used very largely by queen-breeders.

There is hardly a standard article sold by manufacturers, now accepted by the beekeeping public today, that was not passed upon by Dr. Miller before it went on the market. For example, the eight and ten frame dovetailed hive was submitted to Dr. Miller at Medina before being introduced to the public. In fact, neither A. I. Root nor the other members of our organization thought it best to put anything on the market unless it had Dr. Miller's approval. In the same way brood-frames, self-spacing frames, bee-escapes, and introducing-cages were passed before the critical eyes of Dr. Miller. If he pronounced them good they went to the public. The fact that these things have been in use for 20 and even 30 years by practical beekeepers all over the United States shows how nearly Dr. Miller was right.

Let us now look a little further and see what Dr. Miller did in making bee culture saner and safer. Perhaps the biggest thing he ever did was to show to the world the real nature of European foul brood. He blazed the way in perfecting a new cure for that disease—a cure that is accepted today. E. W. Alexander furnished the basis for the treatment, and S. D. House, Camillus, N. Y., showed that the period of queenlessness could be reduced. He also showed that a resistant stock of Italians would go a long way in curing the disease and keeping it out of the apiary. But the ideas advanced above by Alexander and House were so revolutionary that there were but very few who took any stock in them. Only too well do I remember how I was criticised for publishing these "false" doctrines. But it was not until Dr. Miller had tried them out and had proved that they were along right lines that the beekeeping world began to take notice. The good Doctor went further than either Alexander or House in showing the true nature of the disease, and, possibly, how it spreads. When, therefore, Dr. Miller introduced these new methods of treatment the whole of beedom turned right about face. Later work by Dr. Phillips and his assistants proved the soundness of Dr. Miller's views.

Dr. Miller, later on, developed, if he did not invent, a plan for uniting bees with a sheet of newspaper. The plan is very simple and effective. He moved the weaker of the two colonies to be united and placed it on top of the stronger one. Between the two stories was placed a sheet of newspaper (with or without a small hole punched in it). The bees would gradually unite thru this paper; and because the uniting was so gradual there would be no fighting and less returning of the moved bees to their old stand.

This little sketch would be incomplete, were I not to refer to a very predominant and dominant characteristic in Dr. Miller—that temperament or quality in his nature that makes the world delightful and everything lovely—so much so that it showed out not only in his face but in his writings. I think some of the happiest times of my life have been spent in Dr. Miller's home. Not only did he carry optimism thru the printed page, but we found it at the breakfast-table and all thru the day without a let-up. He went further. His conversation was one ripple of merriment thruout. He never ridiculed, but he could see the funny things of life, and sometimes I have come away from his table sore from laughter. He had the habit of taking one by conversational surprise, and would have him holding his sides almost before he knew it.

I said to him 30 years ago: "Doctor, I wish there were some way by which you might reproduce those breezy remarks you make at conventions and in your home—those little sidelines that are so helpful and yet seem like a drink of cold water on a hot day. Is it not possible that you could send Gleanings a page or two of short items of general comment each month? and I would suggest the name 'Kernels of Wheat,' as we already have a department, 'Heads of Grain.' "

He liked the idea; but for a title he suggested that "Stray Straws" would be much more appropriate. That would be more in line with his ability, he said. Our older and younger readers know how well he succeeded in giving us "Stray Straws". They were really kernels of wheat. Dr. Miller's paragraphs of five to a dozen lines were worth whole articles; and almost every one of those paragraphs was replete with smiles.

Years afterward, when I talked about the success of his department he said to me: "Ernest, all the credit belongs to you. You discovered how I might be able to give a little help to beekeepers, and I am certainly glad if I have succeeded."

Years ago at some of the conventions there was more or less strife; and well do I remember that Dr. Miller, in his quiet way, with a smile that was more persuasive than a policeman's club, would smooth out all the difficulties leaving a good feeling all around. In this respect he and Prof. Cook were without a peer. I remember one day he came to me, in the history of the National Beekeepers' Association, when there seemed to be a bitter fight on. He said to a group of us: "You have asked me to pour oil on the troubled waters. The job is too big for me, boys. But I will try my best if you will offer a prayer that only good may prevail"—and it did.

This brings me to another important side of Dr. Miller's character—an abiding faith in God. Come what might, with him all was well. There came a time when, thru some mismanagement on the part of others, he lost a considerable part of his savings. With a sweet spirit of resignation he wrote: "I have not lost all. I have my good wife and my sister. I have a few years of vigorous life left to me yet. I have in prospect a good crop of honey. The Lord has always taken care of me, and I am not worried over the future."

Dr. Miller would have been great in any line of work or profession. Had he stayed in music his fame would have gone over the world, I verily believe; and if he had kept on in the practice of medicine he would have advanced the profession materially. Even in the early days he said people did not need medicine so much as they needed common sense in treating their bodies. He gave up the practice of medicine because he said he did not believe much in giving medicine, and because he had to charge for his daily visitations; and, because his patients objected to paying his bills when he had given no medicine, he would go into something that was more congenial to him.

Let me tell you why I think Dr. Miller would have been great in the field of medicine; or, I should say, in healing. In his day medicine was considered as almost the sole reliance, but not so with Dr. Miller. Fifty years ago he believed that hygiene, plenty of water inside and out, rest, and temperance in eating, are far more important than drugs. Our best doctors today would testify that he was fifty years ahead of his time. The modern schools of medicine are advocating less drugs and more hygiene, plenty of good air and water. When Dr. Miller was going thru college he did not know that he could overwork, but soon found that he was burning the candle at both ends. He came out of college a full-fledged graduate with several hundred dollars to the good, but with health broken. All his life he had to be careful what he ate, as a consequence. He was obliged to keep from overeating as well as from overdoing. Many and many a time I have seen him at the table stop short. "I would like to eat that," he would say, but he would rigidly deny himself, and the result was that he kept himself active in mind and body. He was not only a great teacher but a great healer.

THE WINTERING PROBLEM

Three Authorities Discuss Winter Losses and Tell How the Beekeeper May Prepare Against Them

By J. E. Crane, Jay Smith, and O. L. Hershiser

PERHAPS no one thing has thrown so much light on the laws of life and the conditions for continuous health as the post mortem examinations of the dead; and it has seemed to me there is no time so desirable to study the best conditions for wintering bees as in the spring, especially in a spring after a bad, hard winter when there have been heavy losses.

Winter Loss Due to Several Causes.

During the past winter and spring there has been in northern New England the largest per cent of loss, I believe, of any one year in the past 50 years. And now after a careful study of the whole subject, what do we find to be the cause?

So far as I have been able to make out, there was last winter a combination of three or four unfavorable conditions, any one, or in many cases any two, of which the bees would have withstood with little loss, but they were unable to withstand all of them at the same time.

Long Cold Winter and Poor Stores.

It matters little in what order these conditions are named, but I shall place them in this way:

(1) An unusually long period of confinement, which is always a bad condition.

(2) An unusually cold winter, one of the severest ever known, the thermometer some days not showing above 20° below zero at noon.

(3) Poor quality of stores, and in many cases insufficient stores.

Where bees were short of stores they might have come thru all right had the winter been mild. Where the stores were of poor quality the bees might have lived, if they had had the usual chance of a winter flight. The long continued cold, with the consequent confinement, was not of itself sufficient to cause the serious loss sustained by many beekeepers, for we have found yards where the bees were supplied with good well-ripened clover honey or refined sugar syrup, and they wintered with little loss. One such yard of bees was left with summer entrances wide open, showing that it was not the cold alone that killed the bees. The owner said he did not put on his supers until the bees had stored enough for their winter supplies. Bees that were confined for four or five months in cellars having good stores wintered fairly well, but where they had poor stores and were even protected by a warm cellar, there was a large loss. I have wintered fairly well when the bees were fed on raw sugar, which shows that where bees can fly several times during winter poor stores alone are not altogether to blame for all the loss of bees last winter.

One very good beekeeper said he thought his bees had enough stores to last till spring when he would feed them, and undoubtedly most of them had enough if the winter had been moderate; but it was not, and he lost heavily.

Some colonies in other yards lived till May and then starved from the carelessness of their owners to provide for their wants.

Weak Colonies, Queen Old or Missing.

Besides the above-mentioned causes for loss, we had the usual loss from queenlessness, very weak colonies, and the cluster's getting caught away from the stores, as is sometimes the case.

I noticed that colonies having young queens seemed to come thru better than those with older queens. Whether this greater vitality came from the bees' being reared from a young queen or because they were reared later in the season, I do not know, but probably the latter.

The wintering of bees in the north seems very much a question of endurance, and anything or everything that reduces their vitality lessens their chance of getting safely thru the winter.

Does Sugar Lessen Vitality?

Just here I stop to ask an interesting question.

Does the feeding of a considerable amount of sugar to a colony in the fall lessen their vitality? Or, to put it in another way, will a good colony having 30 pounds of good clover honey in the hive stand a better chance of wintering than one equally good that has ten pounds of good honey and is fed 20 pounds of thick sugar syrup? Will the storing of this syrup and inverting it so it will not crystallize reduce their vitality?

In a letter last winter from T. H. Elwood of New York, he stated that Capt. J. E. Hetherington, who was a close observer, believed that changing ordinary sugar to invert sugar, as bees do when fed, reduces their vitality. I have no way of proving this one way or the other, but if given my choice between two colonies of bees, one of which had stored 30 pounds of early clover honey, and the other 10 pounds and had been fed 20 pounds of best sugar, other qualities of the colonies being the same, I should not hesitate for one moment but take the one that had the early stored honey.

Quality of Stores Most Important.

We have been accustomed to think that good protection by careful packing of bees for winter's cold was the most important thing, but the experience of the past winter and spring has shown most conclusively that the quality of their stores is of equal, if not even greater importance.

I was greatly interested last winter in the Government apiary at Washington. Here the bees were packed in the most approved manner for outdoor wintering even for the far north. I was surprised to learn that there had been considerable loss; but was told that it came from the poor quality of stores gathered the previous season, and that all would have doubtless shared the same fate but for the introduction of young queens and careful packing. So we see that careful packing alone is not a complete safeguard against winter loss, but good stores and careful protection with young vigorous bees are of the utmost importance.

Middlebury, Vt. J. E. Crane.

The quadruple winter cases advocated by Jay Smith

Wintering in Quadruple Case.

Four features are necessary to good beekeeping: First, a large brood-nest, either a Jumbo or a two-story eight or ten frame hive. Second, a vigorous young Italian queen. Third, plenty of stores left with the bees. Honey, hive, and all should weigh around 100 pounds. Fourth, winter protection.

If we analyze the methods used by successful beekeepers, we shall find that the degree of success attained by them depends entirely upon how they put into practice the features mentioned in the above four (not fourteen) points. Many are having success and are practicing only three and some only two, but the ones who are considered top notchers are practicing the features in all four.

Quadruple Case.

Some consider that some of these last ones are too much bother. This is especially so with the quadruple winter case. Personally, even in this mild climate of southern Indiana, I consider that this bothersome job of packing is very profitable. I have been using the case advocated by Phillips and Demuth. Many have called attention to the importance of windbreaks. The trouble with trees and shrubbery for windbreaks is the fact that it also keeps out the breeze in the summer, which not only causes inconvenience to the beekeeper but wears out the bees by the excessive activity on their part in ventilating the hive. We should endeavor to save the vitality of the bees in the summer as well as in the winter. The principal injury done to the colony by the wind in the winter, I believe, is by either blowing into the entrance, or by blowing thru a poorly constructed case, or loose packing. I use fine sawdust, and when putting it in, it is thoroly tamped in. Last winter I kept a thermometer in the sawdust on the outside of the hive, and it registered close to 50 degrees most of the winter. Upon one occasion we had a high wind with the temperature ten above zero, yet the temperature in the sawdust dropped only two degrees. During zero weather the temperature just inside the entrance was always considerably above freezing. As might be expected, the bees come thru in fine shape and consume a surprisingly small amount of stores up to the time that brood-rearing begins in the spring.

Objection to Quadruple Cases.

The only objection I found to the quadruple cases was during a heavy sleet storm. The sleet completely covered the front of the cases, as shown in the cut, and sealed up the entrances air-tight.

This storm lasted a number of days, so I went around with the hammer and a spile and drove holes thru the ice to give the bees ventilation. However, the packed bees were not affected by the sleet any more than the unpacked ones, for the entrances to the hives were sealed up also. No especial harm was done, áltho I believe it caused the colonies to become excited, and a few started brood-rearing prematurely; but, as it was in February, they continued brood-rearing right thru and no harm was done.

Value of Packing in Spring.

But it is in the early spring that I believe the packing does the most good in our locality. During the winter the temperature within the cluster is 57 degrees, while much of our weather is about 30 degrees. This leaves 27 degrees that the bees must overcome. In the spring the temperature within the cluster is 92 during brood-rearing, while the outside temperature at night is around 40 degrees, making 52 degrees that the bees must overcome as against 27 degrees in the winter. From this it will be seen that as far as the cluster is concerned the weather in the spring after brood-rearing has commenced is 25 **degrees colder than it is in the winter.** Hence the importance of plenty of protection in early spring. Added to this, is the fact that at that time the bees are fewest in number, a large area of brood must be kept warm, and on days when weather permits a large percentage of bees must be spared from the hive to gather pollen, water and nectar, which facts make the advantages of plenty of packing quite obvious. Some times during a cold day in early March when the wind was blowing and flurries of snow were scooting around among the winter cases, I would think the bees must be freezing; but when I ran my hand down thru the dry sawdust and felt of the top of the hive, how warm and comfortable it was! I have frequently been surprised at the large amount of capped brood a hive contained in proportion to the number of bees in the hive. Properly insulated from the raw March weather, it is apparent that the bees can take care of twice the amount of brood that is possible with no protection.

Double Walled Hives.

Personally I have never used double-walled hives, but those in the neighborhood using them report that they winter much better than the single-walled hives.

Vincennes, Ind. Jay Smith.

* * *

Wintering in New York.

Last winter and spring New York State beekeepers suffered very unusual losses of bees, due to various causes. In some cases there was loss by starvation, owing to the difficulty in obtaining sugar. Honey of poor quality for winter food was another cause of abnormally poor wintering, and this was aggravated by the long continued cold weather, making it impossible for bees to get a cleansing flight. Many bees that came thru the winter on inferior food were so reduced in vitality that spring dwindling resulted, and the spring loss seems to have been greater than that prior to the first of April.

Many colonies that survived were in poor condition, and numerous cases have come to my notice where the loss reached 100 per cent. There seems no doubt but that the loss thru the State amounted to 50 per cent, and more than that when the weakened condition of the colonies that survived is taken into account.

Kenmore, N. Y. O. L. Hershiser.

FAR NORTH AND FAR SOUTH

Manitoba and Texas are Far Apart, but the Winter Problem is Very Serious in Both Climates

By H. W. Sanders and H. B. Parks

MANITOBA enjoys (or otherwise) the severest climate of any civilized country, with the exception of central Siberia, and indeed even central Siberia sometimes has to give points to Manitoba. Before January last winter we had nearly three months of "freeze-up'', with quite a good percentage of below-zero temperatures, and great banks of snow six or eight feet high around our house after the middle of October.

Since the first bees were brought here from Ontario—not many years ago either—the problem of wintering has caused more failures, losses, and disappointments than anything else, and is so bound up in every apiary with success or failure in honey-getting that we cannot emphasize too often its importance, or lay too much stress on having our colonies strong in bees and stores in the spring, ready to begin intensive brood-rearing during the short weeks before the first flowers begin to appear.

House-cellars.

There are two classes of house-cellars, those with furnaces in them, and those without. The furnace-heated basements are nearly all those of fully modern houses, built of concrete or masonry, warm and dry. The worst feature of them from the beekeeper's point of view is that the bees are kept too warm, and we know of several failures wherein the bees came out of their hives in thousands and died upon the cellar floor before the winter was over, leaving by spring mere nuclei or empty hives.

Where, however, a separate room can be partitioned off for the bees and provided with ventilation direct to the outside, colonies can be wintered with good success, and one beekeeper we know, W. G. Stanbridge of Winnipeg, has several times wintered 100 per cent in this way. His bee-room is bricked off from a large concrete basement with a furnace, and has a shutter giving direct access of fresh air. His experience agrees with our own, that the best temperature for a long winter is around 40 degrees, going rather under than over this figure.

Cellars without furnaces are rather hard to keep from freezing, unless they are "tight" from the outside winds and banked around to keep out the frost. Many farm cellars are made like this, and being deep and tight are used to store vegetables.

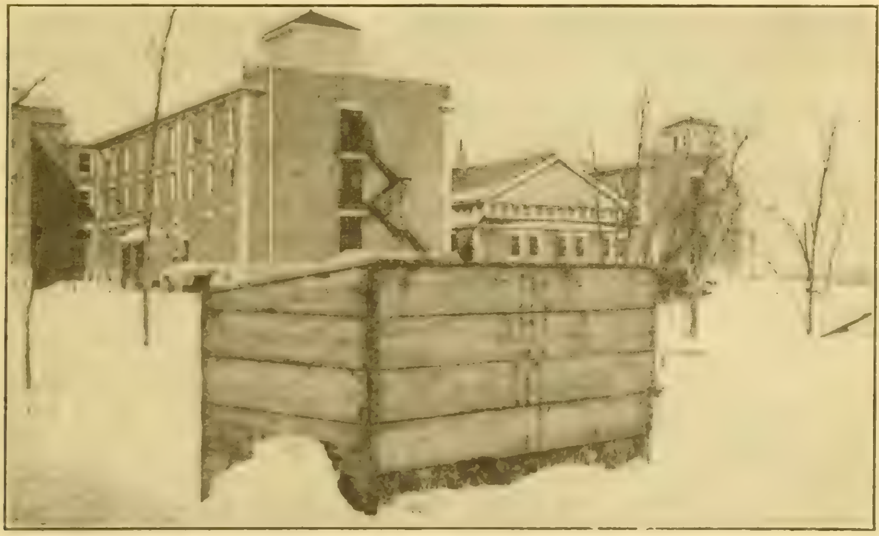
In the cases of which we have direct information of colonies' being wintered in such cellars, we hear that the method is successful even with 30 or 40 colonies. One would think the lack of ventilation would injure the bees, and that the daily visits to get potatoes, etc., would disturb them; but perhaps the fact that access is obtained thru a trapdoor in the kitchen floor, or down a stairway beneath the regular stairs, may result in giving ventilation thru the crevices of these doors.

At my home here we have 46 colonies in a "dug-out" that is not even concreted, the earth being held back by lumber. Around the place the earth dug from the cellar is banked to keep out the wind, and we have a small stove that is lighted whenever the thermometer goes very far below 40. Ventilation is obtained thru a 3-inch pipe leading directly to the outside, but this is closed in very severe weather. In this simple way we have had good success for several winters.

Interior of the cellar.

Outside Cellars.

We have also a number of our colonies in the cellar, built outside by W. Pink of Sturgeon Creek. The accompanying picture will give some idea of this place,



Outside wintering experiment at Manitoba Agricultural College both inside and out. The outside cellar is about nine feet deep, wide enough for two rows of piled-up hives with a gangway between, and is ventilated by the shaft shown in the photo. This is six inches square and runs down to within a few inches of the cellar floor. Above the cellar proper is a roof covered with two feet of planer shavings (some unused bales can be seen on top), and this is protected by a second roof, covered with "rubberoid" roofing. So far the cellar is giving excellent results in spite of very cold weather. Mice are the worst prospective troubles we can think of.

W. J. Boughen of Valley River, Man., has a cellar beneath his garage and honey-house. This is built of concrete and is eight feet deep, with a separate entrance at the rear on the bank of the river. In the vestibule of the cellar he keeps his honey-tank, and runs the honey in by gravity from the extractor above, and in this vestibule he also keeps a cook-stove by means of which he regulates the temperature and ventilation in the winter time. The floor has a sawdust packing between the joists.

Outside bee cellar at Sturgeon Creek, Manitoba.

Wintering in Clamps Outdoors.

W. J. Vickers of Kildonan has wintered 16 colonies successfully and without a single loss, by burying them in clamps in a sandy soil, with straw and earth covering. This is the only case of this form of wintering that has come to my notice, but I have heard of several attempts at outdoor wintering, with more or less of success.

The large case shown in the photo is the outdoor wintering experiment of winter before last at the Manitoba Agricultural College, of which the dormitories can be seen in the background. This was undertaken by R. M. Muckle, the Provincial Apiarist. Three out of the four colonies came thru safely.

Other attempts to winter outdoors have been less successful, possibly because undertaken without sufficient knowledge of the careful packing that is essential in so cold a climate. Many people have tried to winter bees in chicken-houses, barns, attics, etc., but with small success. Those who have persevered long enough to become real beekeepers have generally ended in wintering in a cellar, because that is the most satisfactory method.

Sturgis Creek, Manitoba. H. W. Sanders.

*

In Texas.

Texas is so spread out not only east, west, north, and south, but up and down as well that it is impossible to make a general statement relative to wintering bees. The statements given apply to the south central and southwestern parts only, as these are the commercial honey regions.

Winter Flights Decrease Stores.

Contrary to the belief of most beekeepers and of many who have never passed thru a southern Texas winter, wintering is a most important problem in Texas. By data given in an issue of Gleanings for this year, the winter loss in Texas for movable-frame hives was 15 per cent and for box hives much higher. The cause of this is a fairly warm, eccentric winter. It is not warm enough for nectar flows and yet warm enough for bees to fly. In one hive under observation during the winter of 1919-1920, bees flew every week. The mercury fell below the clustering point nine times in January and February. Thirty-six hours was about the longest period below the clustering point, and five hours the shortest. In all intervals between these nine low points, the bees flew freely. In late January and early February, bees were observed collecting pollen from mistletoe and spring beauty (Claytonia Virginica), even tho the thermometer registered forty-five degrees Fahrenheit in the cluster of flowers. All this winter activity means the consumption of enor mous amounts of stores. A number of our most observant beekeepers say that these colonies used an average of 40 pounds of honey between Dec. 1 and Feb. 1.

Close Extracting Causes Shortage of Stores.

The cause for the large winter loss of last winter is easily seen on examining the records of the weather conditions of last fall and of the beekeepers' activities. In September, 1919, honey had a good price and was in demand. The hives had a good supply in them, and there was promise of an abundant honey flow. The beekeepers extracted very closely, expecting the bees to get winter stores from the fall flowers. It rained, however, and then rained some more. From Sept. 15 until Nov. 20 there was hardly a day during which a bee could work. Following this wet fall came the winter with its many periods of cold.

By Feb. 1, stores were exhausted and most of the beekeepers were feeding. Because of rains and the cold this feeding had to be kept up until April and in some places until June.

Lack of Room in Fall Causes Loss.

As late and too close extracting is the cause of much winter loss, the lack of room has been the means of losing many stands of bees in yards of good fall flow. It is a common practice here to extract about the middle of August and cut down the size of the hive to the brood-chamber. In many instances, especially in the fall of 1918, this resulted in the death of many colonies. These colonies had their quarters cut down to the brood-chamber in August. In September and October, there was a heavy flow from cotton and fall flowers, and, as a result, these bees so filled the brood-chamber with honey that there was no place to raise brood. In the spring of 1919, these hives were still full of honey and had but few bees, and in many of them there was none.

Kinds of Winter Protection.

Several of our beekeepers have tried out various kinds of winter protection, the windbreak being the most popular. Some of these men report that the stores are used up in the protected colonies first. We cannot believe that this statement is correct. However, as no data are yet on hand relative to the results of winter packing, we make no statement.

A large number of our commercial beemen are agreed on this point, that from the standpoint of economy the only winter packing necessary is to restrict the hive opening to one-half an inch by six inches and have in the hive, December 1, 40 pounds of honey for each one-story ten-frame hive and 90 for each two-story hive, as a two-story hive is supposed to contain over twice as many bees as a one-story.

The Situation in a Nutshell.

It will thus be seen that the wintering problem of the commercial beekeeping part of Texas is very complex and acute. Its solution requires much additional fall care of the colonies, a large amount of winter stores, and a very early spring inspection to find if feeding must be carried on. It is the belief of many that winter packing which will hold the temperature just above the clustering point will save bees but will require more stores, and that the only way to save the bees and the stores would be to put the colonies in refrigeration. This, of course, is out of the question, but we believe that the packing of bees in such a way that a uniform temperature of about 60 degrees F. is secured, is worthy of trial.

College Station, Tex. H. B. Parks.

CELLAR WINTERING

Description of Two Good Cellars and How to Winter in Them. Time of Putting in and Taking Out

By Chas. D. Blaker, J. C. Duff, and B. F. Kindig who Quotes David Running, Ira Bartlett, and J. D. Robinson

(A half-dozen high authorities on cellar wintering have been ushered into this article and seated side by side in print, without conspiracy on our part to bring them together in a discussion of cellar wintering. They just happened along, all talking on the same subject, so we put them in company with each other, and allow our readers to hear what is said.—Editor.)

THE best cellar for this climate that I have yet seen is the kind used by E. L. Hofmann of Janesville. The one at his home apiary is 30x20x8 with cement walls and floor. The ceiling is made of boards loosely laid and on this ceiling is about two feet of clover chaff. The sides and ends above the ground and the roof are of galvanized iron. The ceiling above mentioned is below the frost line. The door is at the east end, and at one side of the door is the entrance of a sub-earth ventilator. The outlet pipe is at the west end and passes thru the roof. Mr. Hofmann gets practically 100 per cent results from this cellar, barring queenless colonies. A honey-house may be built over this cellar leaving the clover-chaff packing between the ceiling of the cellar and the floor of

E. L. Hofmann's apiary, at Janesville, Wis.

the honey house. I understand that Mr. Hofmann is planning to do this.

Minneapolis, Minn. Chas. D. Blaker.

* * *

An Ontario Bee Cellar.

Since the cellar which we built in the fall of 1918 has given us good results, perhaps a short description might be appreciated by the readers of "Gleanings" who may be contemplating building one.

Construction of the Cellar.

It is built in the shape of a box car, and is entirely of cement except the doors and the storehouse above. It is frame and covered with prepared roofing. The inside dimensions of the cellar are thirty feet long, seven feet wide and six to six and a half feet high (the ceiling being arched to make it self supporting). As the ground is level, the cellar is built only halfway in the ground. The cellar wall is so built as to allow about three feet of dry earth between it and the cement wall of the workshop, and the cellar is built high enough to allow one and one-half to two feet of planer shavings between the top of the cellar and the floor of the workshop.

The vestibule is made long enough to allow the inside door to open out and also give room for four steps. The outside door opens in, and is made of matched lumber, single ply. The inside door is also of matched lumber, but is double with low grade roofing between the two thicknesses of the door; both are tight-fitting.

A tile drain runs from the front of the door down both sides of the cellar just outside of the wall where it connects with the drain from the back of the cellar.

The intake ventilator is a four-inch tile running down the outside wall and entering the cellar at the floor beside the door. At the outside the opening is covered with wire

Outside view of E. L. Hofmann's bee cellar at Janesville, Wis.

screen to keep the mice out, and an old hive is turned over it. In cold weather the hive is covered with snow and we think that the air is tempered a considerable amount by being filtered thru the snow. The outlet ventilator is a six-inch tile in the ceiling at the opposite end of the cellar, to which is attached a galvanized pipe which runs up thru the storehouse to about three feet above the roof and is covered with a cap which prevents rain or snow getting in. There is usually a little drip from this pipe, caused by the moisture in the warm air coming in contact with the cold pipe, but this runs out thru the drain which is directly underneath, and gives no trouble.

Putting In and Taking Out.

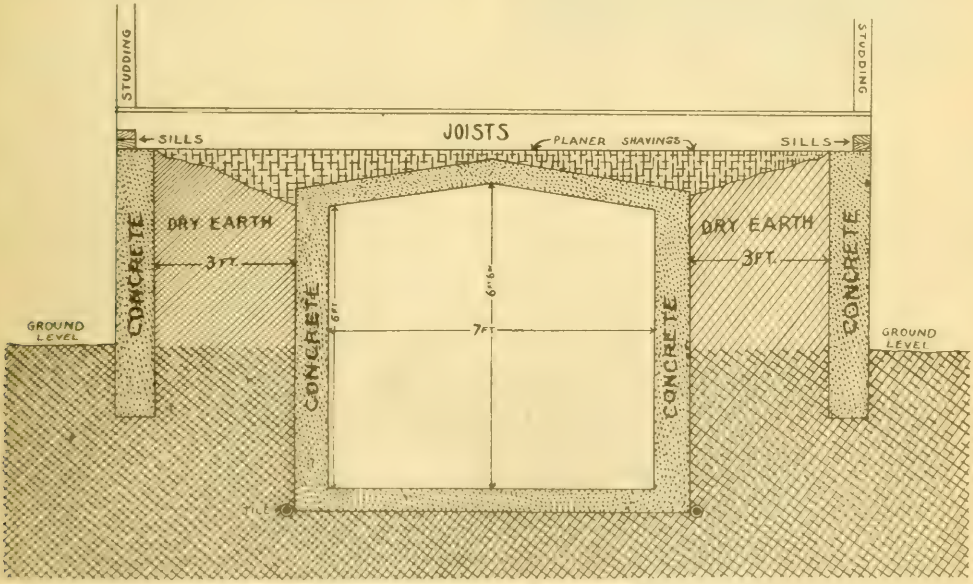
In 1918 we put the bees in on November 25 and took them out on Apr. 14. For experiment we took one colony out on Mar. 25 and put it in a sheltered corner in the yard; it came thru the cold weather, which happened later, in good condition. In 1919 we put the colonies in the cellar on Nov. 14, 15, 20, and took out a few on Mar. 31 and Apr. 1; the rest were taken out between Apr. 17 and 26. Our experience this spring would lead us to believe that there is nothing gained by taking them out too early, even if there are a few warm days. If the cellar was getting warm and the bees were restless, it would probably be advisable to set them out; but we have had no trouble that way, as they were just as quiet when we took them out as they were at any other time.

When setting the hives out we put on burlap and newspapers, shove the lid down tight, and close the entrance to a ¾-inch auger hole, leaving all entrances this way till the weather gets warmer. With the small entrance we have had no trouble from drifting, even if the hives were not all put out on the same day.

Inside of Mr. Duff's bee cellar.

Temperature of Cellar.

We kept the thermometer in the cellar both winters. The first winter we looked at it almost every day, and last winter we looked at it perhaps two or three times a month. It was usually kept on the bottom-

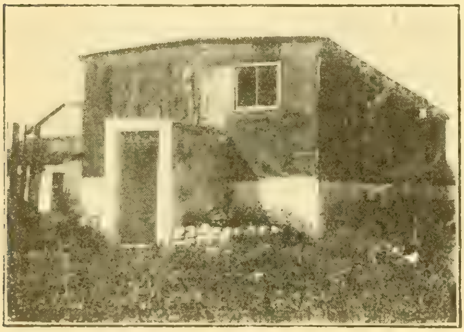


Duff's plan for building the bee cellar under his workshop.

board of the hive just outside the entrance and on one of the hives about the center of the cellar and about halfway between the floor and ceiling. The temperature varied between 47 degrees and 49 degrees Fahrenheit, but most of the time was 48 degrees. For a short time we kept it on the bottom-board of the hive inside just beside the cluster. The temperature there varied from 55 degrees to 58 degrees Fahrenheit. At no time did we see it at any other temperature than those given above, except once when we were moving the bees out in the spring. The doors had been open quite a while, and the temperature was 50 degrees or 51 degrees Fahrenheit. We might say that it was not an expensive thermometer, and that we did not test it except by putting it in a mixture of snow and water. Altho it registered 32 degrees in the snow and water it might not be absolutely correct at a higher temperature, as the bore of the tubes is liable to vary a little in cheap thermometers.

Arrangement of Hives in Cellar.

When putting the bees in we lay bricks on the floor and put 2 x 4's on top, then pile the hives five high directly on top of each other. This size of cellar will hold 100 ten-frame Langstroth hives on each side; and by facing another row towards the back of the cellar it would be possible to put in 75 or more extra in the center, and still leave room for one to get to the back of the cellar.



Outside view of Mr. Duff's workshop with bee cellar beneath it.

We leave the entrances open full width and the feeder holes in the honey-boards open. We prefer honey-boards to burlap covers as the burlap is liable to get damp. We have had no trouble with the moisture's collecting on the walls, ceiling, or floor. In fact, you could light a match on them almost anywhere, except around the ventilator.

My Idea of a Good Cellar.

We think that a cellar should be long and narrow rather than square, as it gives more surface touching the ground, and for that reason it should be easier to keep an even temperature. We think also that it should have a building or at least a roof over it, considerably larger than itself, rather than a mound of earth, as the earth, in this locality at least, would be sure to freeze solid, making the ceiling cold and thus causing the moisture to collect on it.

In our cellar, altho we have lost a few two-frame nuclei in which we were trying to carry over a few surplus queens, we have wintered colonies from a three-frame nucleus up to colonies of full strength, with practically no loss.

Tara, Ont. J. C. Duff.

* * *

Time for Putting Bees in the Cellar.

The standard rule in this State for putting the bees in the cellar is immediately following the last good flight in November. We usually have a few fine days during the middle or latter part of the month when the bees get a cleansing flight. In April, 1920, Gleanings, C. W. Aeppler of Wisconsin says, "Bees had a flight in this latitude, in this part of the country, every year in the past ten years between the dates of Nov. 10 and 20, except in 1910." This may or may not be a fair average for the northern States. At any rate there are years when the bees do not have their customary opportunity for the late November flight. In these exceptional cases the beekeeper must answer quickly this question: Shall I put the bees in or shall I take the chances of further exposure to cold in the hope of fair weather later?

In order to answer the question satisfactorily, I addressed the question to each of several prominent Michigan beekeepers who practice cellar wintering. The replies of those who answered are as follows:

David Running, Filion, central Michigan: "So far as wintering is concerned, if the cellar is properly constructed and the bees have fairly good stores, I do not think it makes much difference if the bees have not had a flight for two or three weeks prior to putting in, provided it has not been excessively cold during that time so that the bees have had to consume much stores and have been active to keep up temperature. Of course, the ideal time to put in would be just after they had their last good cleansing flight, but with good stores and a proper cellar they should be able to get along very well for five months without a flight. I have had them confined in the cellar for five months and four days without any serious trouble. I would rather have them in the cellar and miss several later chances for flight than to have them out until excessive cold weather would cause them to waste energy and stores, even tho they might have a good flight after the experience. Bees stop rearing brood here the latter part of September or early October. If they have had two or three weeks of quiet and then a good flight, nothing more is needed, altho a later flight will do no harm and might do good.''

* * *

Ira D. Bartlett, East Jordan, northern Michigan: ''Here, when Nov. 10 to 20 arrives and we fail to get a bee flight, if threatening weather appears, we may get a foot or more of snow and some very severe weather which would seem to be bad for bees outdoors. It may clear away and we may have some very nice weather in which the bees would fly, but I question the advisability of taking the chance. Last fall I put my bees in on Nov. 7 following a fair flight. Others left theirs out. Snow and cold followed and continued during the winter. They were forced to put theirs in because of the snow, and later theirs showed signs of dysentery while mine showed none. I feel that we cannot take the chance. I expect to place mine in the cellar by Nov. 15 this fall. I feel that on good stores they are safer.''

* * *

J. D. Robinson, Levering, extreme northern Michigan: ''Of course, everyone is agreed on the desirability of the bees having a good fly, but suppose they do not get one up to the middle of November! With us there is not one chance in ten that the bees can get one after that date. By that time we generally have snow that stays till spring. We feel very regretful if the bees do not get a good fly late in October or early in November; but, if they don't get it, it certainly does not help matters any to leave them out all winter on the very remote chance that they may possibly get a flight before spring. The opinion is growing on us that while early flights in the spring and late flights in the fall are very desirable, still a **good** colony with **good** stores in a **good** place will stand a pretty long confinement. We are inclined to the theory that the element of the kind of stores and the kind of quarters is of more importance than an extra 30 or even 60 days' confinement.''

The chief reason for desiring a good flight before placing the bees in the cellar is that the bees may rid themselves of the accumulations of undigested materials. If the bees have had a flight in early November or late October and no exceptionally severe weather is experienced for the next week or two, even if a favorable day comes the bees are often loath to take a good flight. The only conceivable reason for this is that they do not feel the need of it. The reason they do not feel the need of it is that they have lived on good pure food and have not used up an excessive amount of food in keeping the temperature at a comfortable point. Experience has shown that when the bees have consumed only pure food such as good white honey, it is not necessary for them to have another flight previous to placing them in the cellar. If they have a food containing much indigestible matter, a flight before placing them in the cellar would be more necessary. The question seems to resolve itself into one of **food** rather than of **time**.

An essential part of the preparation for winter by the wise beekeeper is the removal of the honey that is not fit for winter food and the substituting of a good grade of honey or sugar syrup. If this has been done, then it seems that the best beekeeping practice is to put the bees in the cellar when the time comes regardless of the time of their last flight. Mr. Aeppler throws still more light on this important question when he shows that in his locality during the last 46 years there were only 8 opportunities for flight after Nov. 20. That must mean that the leaving out of bees after the proper time for placing them in the cellar has passed is a gamble with the chances almost six to one against the beekeeper.

East Lansing, Mich. B. F. Kindig.

[illegible] winters [illegible] colonies on shelves under a long shed

FROM THE FIELD OF EXPERIENCE

KEEP YOUR TRADE SUPPLIED

Even if You Have to Buy Honey from Other Beekeepers or Dealers

Some 20 years ago in Chicago, when I was engaged in the wholesale honey business rather extensively (handling five carloads in one year, and bottling three of the five cars), I sold a large quantity of honey, both in 60-pound cans and in barrels, to beekeepers in many parts of the country. I remember one live beekeeper in St. Paul who ordered and re-ordered continuously, to keep his honey customers supplied. He certainly knew his business, and didn't propose to allow his regular customers to go unsweetened as soon as his own crop of honey was all sold out.

Yes, I know there is some danger, when getting honey on the open market, that some foul-broody honey may be secured. But there is no good reason why plenty of honey cannot be had that was produced in disease-free apiaries.

I never could understand why those who produce more honey than their local market can well use, do not patronize the advertising columns of the bee papers, and thereby let their fellow beekeepers, who are soon sold out of honey, know just where they can get more to supply their demand.

By doing such advertising, it may be found that some beekeeper right in an adjoining county would be glad to buy the honey to take care of a growing trade. Also, such procedure will often result in getting a better price than to try to unload too much honey in one town, and thus cause it to become a drug (or drag) on the market. Beekeepers should wake up, and use a little gumption at the selling end of their business.

For many years I have contended, and still insist, that there has never been enough honey produced to supply a demand that might easily be created if a little effort were put forth by honey producers themselves. And now that sugar has gone away up in price, it is just the time for beekeepers to get busy and push the sale of honey, which is a much better sweet than sugar, but the general public doesn't know this, and so they go on neglecting honey as a food. So it is up to the honey producers to educate the consuming public concerning the value of honey as a daily food. If the beekeepers don't do this, it never will be done.

It would seem to me that this is a sufficiently vital subject to merit some discussion in the bee papers. The selling end of the honey business has been neglected all too long. There certainly are ways of disposing of the honey crops so they shall be more evenly distributed over the country, and thus insure better, or more profitable prices to the producers. It seems to be the unfortunate lot of the producers along all agricultural lines to be working for less pay or profit than those who make a business of simply handling the products of the farm. No doubt some middlemen are needed, but there is no good excuse or reason for a horde of them attempting to exist as they do, when half as many or less could handle the business. Let the other half get out in the country and help produce something, rather than be the parasites that a good many of them are. Unless more people do get out on the land and help produce food, there is going to be some enforced starvation among certain classes in the not far distant future. And that means that many innocent and helpless children will not get the food they should have.

But I am wandering from my subject. Let every beekeeper see to it that his home trade is always supplied with honey. If his own crop does not reach, then by all means buy some honey from other beekeepers or dealers, and keep the people sweet! It will pay to do this, not only in dollars and cents, but also in the consciousness of having done a commendable work in the interest of humanity. George W. York.

Spokane, Wash.

* * *

SUBJECTS TO AVOID

When a Beekeeper is Selling His Honey in Person at Retail

Inasmuch as no one can be well versed in many subjects, and that of bees and honey being one which is little understood by the average person, and concerning which there are so many false impressions, it would seem to be the part of prudence for the man who purchases and "peddles" his own honey to bear in mind that there are certain points which it is well to emphasize, and others on which the least said the better.

All of us have been asked such questions as, "How do you get that little box around the cake of honey without mashing the comb?" "Do you feed your bees glucose or sugar?" "Do the bees ever get out of their hive and sting you?" And so on indefinitely. If the questioners are used to a local amber honey, they will solemnly claim that a lighter honey is glucose, because it is nearly that color; or that some other honey has been "doped" because it "gets sugary." That is when explanations are in order.

If they are referring to the product of some competitor, it would, of course, be easy to refrain from explanations, by silence

FROM THE FIELD OF EXPERIENCE

agreeing that they are right, and dwelling largely on the virtues of your own honey, which, aside from any moral standpoint, would be poor policy. "Knocking" one's competitor never did any one permanent good. The ethics of beekeeping should prompt us to offer to gamble on the purity of our competitor's honey in such cases, provided it is represented by him to be so (even if gambling, perhaps, isn't ethical). Your competitor may be broad enough to do the same—not that the writer advocates a policy of "scratching each other's back," so to speak, but it precludes further spread of a false impression.

It also seems to be a mistake to speak to the layman of feeding bees sugar for winter stores. No amount of explaining will quite convince him that he isn't being asked to pay 40 cents a pound for some of that sugar.

Another subject which, in such cases, it would seem better not to bring up unnecessarily is that of bee diseases. Foul brood, paralysis, dysentery, etc., sound "simply awful" to unaccustomed ears, and mention of them had better be reserved for discussion in company where they are better understood; otherwise they do not tend to create an appetite for our product.

A. G. Van Ronzelen.

St. Louis, Mo.

* * *

THIS YEAR'S HONEY CROP

The Amount of Honey Obtained in New York and its Probable Price

It has been noted by some that a good honey season follows heavy winter losses, but this season has proved an exception in many localities. In beekeeping as well as in other occupations there are always some important "ifs" to be taken into consideration, and, in this case, if the dry weather of last season had not occurred and killed much of the young clover and if we had not had a cold spring that held back brood-rearing and if we had not had very dry weather during the spring and early summer just when we needed the moisture to develop the clover that survived the drouth of last season and if no other "ifs" intervened, we would have had the expected good honey crops from the bees that survived. As it happens, a very poor honey season is the lot of the beekeepers in western New York except where local rains last summer saved the clover. However, in some localities in the State the crop has been normal, notably in central New York.

The prospects for late summer and fall honey are good. Since the first of July there has been a good growing season, and all fall flowers, such as goldenrod and aster, as well as buckwheat, of which the usual acreage has been sown, are in unusually good condition.

Besides the conditions above noted that prevented a good crop of clover honey, the quantity that will be available for market will be curtailed, owing to the activity of beekeepers in making up their winter losses of bees. Increases in excess of 100% are common, and this will consume a large quantity of honey that otherwise would be available for market.

In such localities as have a poor crop all honey produced will be consumed locally, and good prices will be obtained without difficulty. Where the amount of honey produced is in excess of local needs, of course the prices ruling thruout the coun-

The snow was deep in Thos. Martin's apiary at Wanstead, Ontario.

FROM THE FIELD OF EXPERIENCE

try will prevail, and these seem to be about the same as ruled last year.

At the annual field meeting of the New York Association of Beekeepers' Societies the crop committee recommended minimum prices as follows:

60 lb. cans	$15.75 each,	2 or more	$15.00 each;
10-lb. pails	3.25 each,	2 or more	36.00 doz;
5 lb. pails	1.75 each,	....	18.00 doz;
1-qt. jars	1.25 each,	....	12.00 doz;
1 pt. jars	.70 each,	....	6.60 doz;
1-lb. jar	.50 each,	....	4.60 doz;
8-oz. jar	.32 each,	....	3.00 doz;
fancy comb	.50 each,	....	9.50 case;
No. 1 comb	.45 each,	....	8.75 case;

dark honey 5c a pound less.

A discount of 15% to be given where a job lot is taken.

The prices recommended by the Western New York Honey Producers' Association are the same except the discount on job lots.

Beekeepers are coming more and more to comparing the price of honey with that of other foods and commodities and endeavoring to maintain prices that bear a just and reasonable comparison, which shows that beekeeping is on a sound foundation.

Kenmore, N. Y. O. L. Hershiser.

* * *

NOT A LOSS IN SEVEN YEARS

In Colonies Packed with Shavings in Single Cases

Last year my 150 colonies were packed with shavings in quadruple, double, and single cases. The single cases hold their seven years' record of never a failure. The double cases were apparently a little ahead of the quadruple last year. A ⅜-inch case covered on all sides with asphalt roofing does not seem as good as those not so covered. Bees in the quadruple cases facing east and west drifted badly. The snow was of no benefit, as shown by the fact that some of the weakest colonies were entirely buried, while some that had no snow around them came thru in first-class condition. Cases are all clear of the ground and have three inches of packing underneath, but I never saw so much mould and dead bees on the bottom as I found this last spring, even where no snow blocked the entrances.

Natural stores were apparently all granulated; sugar syrup was not. Four-fifths of the stores being sugar syrup accounts for my having 145 colonies alive in the spring, while those who allowed their bees to winter on last year's honey are heavy losers because of the granulation of the honey.

For good wintering I prefer young queens. I have no queens over two years old and I find that the majority of the weak colonies have two-year-old queens.

Wanstead, Ont. Thomas Martin.

* * *

BLAKER ANSWERS CRITICISM

Why Mr. Cox Failed in Applying the Deadman Plan of Cleaning Sections

Two years ago I tried on a small scale a plan similar to the Deadman plan, described in August Gleanings, for getting unfinished sections cleaned up.

I selected a strong colony, put on a super

Thos Martin's winter cases doing duty

FROM THE FIELD OF EXPERIENCE

with inch starters in the sections, put a bottom board close to the side of the hive on which I piled, four high, the supers of unfinished sections and closed the entrance to the super from the outside. Then I took a piece of 2 x 4 scantling as long as the width of the two hives, hollowed out a groove on one side after the fashion of the Alexander feeder, and put it under the back end of hive and supers so the bees could pass freely back and forth between the hive and the supers.

For a short time the bees went for the unfinished sections like robbers, but as soon as they found they had it all to themselves they cooled down and refused to uncap anything that was capped over. I took away two of the supers so I could get at the other two and uncapped the cells and took out the sections as they were emptied and put in others, all the time watching the super above the colony to see that the bees had room to store the honey. In that way I forced about 100 pounds of nice, clear honey on to them, but it took a month to do it. By that time the nights were getting too cool for comb-building.

When I took off the super I had some more unfinished sections—about 20 pounds of honey in a 32-section super. What the bees did with about 80 pounds of that fed-back honey I will never tell you.

The plan looks so good in theory that I may try it again, but in practice it was a failure.

If I try it again I would use unfinished sections above the colony, but in that case we would get patched-up and unsightly sections.

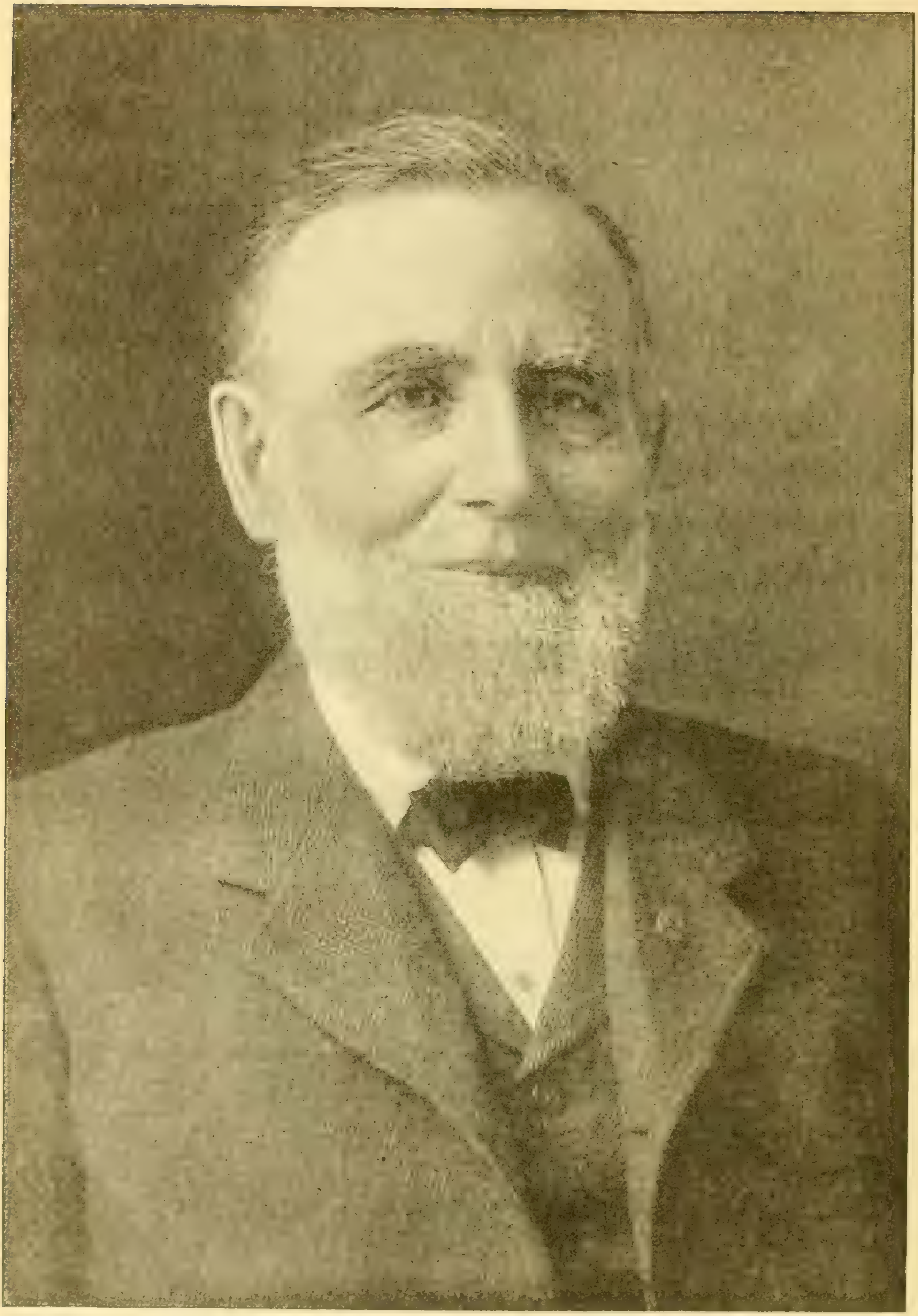
Oakland, Ill. William Cox.

Reply to William Cox.

I am not at all surprised that Mr. Cox failed in what he tried to do, but I am surprised that he should blame the Deadman plan for his failure. He says that if he tries it again he will use unfinished sections. Well, that is exactly what Mr. Deadman says to do in the instructions which he gives in Gleanings for July 15, 1916. He also says in this connection that "sections that are capped or partly capped, but very thin, should be uncapped. Otherwise the bees may build over the cappings, or back of them, making an irregular surface." If those instructions are followed the "patched-up and unsightly sections," to which Mr. Cox refers, will be avoided. Mr. Cox failed because he used starters in the supers above the colony. And he also failed in having the unfinished sections cleaned up, which he placed on the Deadman board by the side or back of the colony, because he did not follow instructions in that regard. In the article above referred to, Mr. Deadman plainly says that one should first uncap any sections that may be capped. But I especially recommend this plan to those who are producing extracted honey. First, because it does not stir up the whole apiary, as when distributing the wet combs among all the colonies. Again, one can leave the combs with the "clean-up" colonies until late in the fall and thus have them protected from moths until it is time to store them away in the honey-house. And last, but not least, it will lessen the danger of the spread of foul brood thruout the apiary in case a colony has brought in infected honey from a neighboring apiary. Now I am very sure that if Mr. Cox will carefully follow Mr. Deadman's instructions he will not say that the plan "in practice was a failure."

Minneapolis, Minn. Chas. D. Blaker.

Wisconsin beekeepers at their Chautauqua held at Madison, Aug. 16-20, 1920. The big tent shown in the rear of the group served as the assembly hall. The Chautauqua proved a great success.



Author of "Stray Straws" from December, 1890, to December, 1919.

DR. C. C. MILLER, the beloved friend of all beekeepers, died in his ninetieth year, Sept. 4, 1920, after a final illness of five days. There was no dimming of his personality during the later years of his life. Until the very last he remained at his best, ever alert, genial, full of enthusiasm, always radiating a great-hearted love that embraced all nature and all mankind. Dr. Miller's life was one of the richest blessings of the beekeeping world, and his writings will be a most prized inheritance for years to come.

Early Life.

Dr. Miller was born of English and German parentage in a country home at Ligonier, Pa., June 10, 1831, and here he spent his boyhood days, enjoying life to the full. The country surrounding his home was beautiful, and awakened in him that great love of nature that was so characteristic thruout his life. At the age of ten years he lost his father, whom he greatly loved and revered. In his writings he has characterized him as "most lovable in character," and has stated that thruout his life he has been influenced by the desire to be as good a man as his father.

His Education.

By working in a country store two years at $24 and $50 per year Dr. Miller obtained enough to go to the village academy. He was then obliged to teach before taking up his college work at Jefferson College, Cannonsburg, and Union College, Schenectady, N. Y. By rigid economy, boarding himself at 35 cents a week and doing any honest work from ornamental penmanship to peddling from house to house, he completed his course, taking at graduation the highest honor, Phi Beta Kappa.

A Physician.

After one term of teaching in Geneseo Academy, N. Y., he studied medicine at Johnstown, Pa., and attended lectures in Michigan University. He received his M. D. degree, and for a year practiced medicine in Earlville and Marengo, Ill.; but he was not happy in the work. His health was not rugged enough to stand the strain, and he was so vitally concerned that each patient should show immediate improvement under his care that the responsibility of his profession proved too great, and he was obliged to take up other employment.

Music and Teaching.

At the age of 26 Dr. Miller married Mrs. Helen M. White. A few years were spent in teaching vocal and instrumental music, and a few years as principal in the Marengo public schools.

In 1870 and 1871 he traveled for the music house of Root & Cady. In 1872 he spent six months as official agent in starting the first of the May musical festivals under Theodore Thomas at Cincinnati. The three following years he worked for the Mason & Hamlin Organ Co. at Chicago, his wife and little boy leaving the farm and spending their winters with him. During the summer months, when they were not with him, however, visions of the country continually haunted him, making the city appear desolate indeed; and so in 1876, in spite of an offer of $2500 and expenses, he left the city and took a school at Marengo at $1200.

His Beginning with Bees.

Altho Dr. Miller when a boy had taken a little interest in a colony of bees that his father kept in a barrel, still he had given bees but little thought until 1861, when his wife captured a runaway swarm and hived it in a barrel. This colony the first year stored 93 pounds besides teaching Dr. Miller a great deal about bees. Eight years later he saw a copy of the American Bee Journal, and among other interesting writers he found the name of A. I. Root, whom he visited at Medina the following year. For the first nine years but little increase was made; but in 1876, when he gave up his city work and returned to the country, he had 99 colonies. From this time on he made beekeeping his business.

In the spring of 1880 his wife died, and in the fall of 1881 he married Miss Sidney Jane Wilson. Her sister, Miss Emma M. Wilson, was his main assistant in the apiary after that time up to his death.

Some remarkably good honey crops were secured by Dr. Miller. The best record was an average of 266.74 sections from 72 colonies, and his best colony that year produced 402 sections.

His Writings.

It is doubtful whether any one else was ever as well informed in beekeeping literature as was Dr. Miller. He always attempted to read all the journals on beekeeping, even those in German and French. His own experience, thus backed by the experience of others, made him an exceptional writer. Moreover, his wit, tact, and unfailing good humor endeared him to the hearts of his readers.

Dr. Miller was always at his very best when assailing another's position on any given subject or when defending his own. For this reason he was prevailed upon in 1890 to contribute the department "Stray Straws" for Gleanings in Bee Culture. This department was continued without interruption until last November, when failing health made less work imperative. Since 1894 he has conducted "Dr. Miller's Answers" in the American Bee Journal. The separate articles, also, that he contributed to the different journals from time to time were always valuable and right to the point. His "Fifty Years Among the Bees" has been an exceedingly popular book.

Love of Nature and God.

As Dr. Miller said, he might easily have amassed more money in some other line of work; but in so doing he certainly could not have taken the enjoyment that he had in his quiet country home among his flowers and his bees.

Dr. Miller was a life-long member of the Presbyterian Church. To him the spiritual life was all very real. He not only believed in it but he lived it, as was testified by every act of his splendid life and in every feature of his wonderfully expressive face.

SIFTINGS

J. E. Crane

VITAMINES in Honey! Hurrah! But hold on a moment: it does not appear to be in the extracted honey but in comb honey, and we have always been told that wax is indigestible, that even sulphuric acid can not dissolve it. And now comes the news that rats on a starvation diet can get enough vitamines out of comb honey to thrive. How many theories, supposed to be true have been proved by the lime light of scientific investigation to be defective, or only in part true! But I have been wondering since reading Mrs. Puerden's account of vitamines, whether the clear honey used in these investigations was not bottled honey that had been sterilized to prevent granulation, which might be the cause of finding few or no vitamines in honey without the comb.

Dr. Miller's plan for the prevention of after-swarms, page 534, is simple and effective, and would, I believe, in most sections prove entirely satisfactory. But why have first swarms? We bought last spring 30 colonies in odd-sized hives just for increase. As fast as a colony became strong enough, I would shake the bees into a new hive and place the hive of brood-combs in the place of another strong colony. As soon as the colony that had been moved to make room for the one I had shaken, was strong enough I would shake it and place it on the stand of another hive, usually one that had been shaken before. By this method swarming has been almost wholly eliminated, only one swarm issuing. The colonies nearly doubled, with honey enough for winter in most of them and considerable surplus from new colonies. This method is not, I believe, new, but proves to be one of the simplest and easiest I have ever tried. I can usually shake a swarm from their combs much quicker than hive the average swarm.

That field of annual sweet clover certainly makes a great show on page 560. "Well," I said to myself, "it may grow like that in the far western soils, but not here in Vermont;" for I had sent for some of the seed after reading what was said of it in the June number of Gleanings and was surprised at its small growth during June and July. Not having seen it for some time I thought I would go and look at it before throwing stones or saying anything to discredit it, when to my great surprise I found it on the last of August breast-high or over four feet by actual measurement and well branched and beginning to bloom. It was sown June 10, and on July 10 had made but little growth; but during August had spread itself like a green bay tree. It is doubtful if it matures seed, but I can see what it is like. It seems to grow by the rule of geometrical progression.

* * *

Cheer up, brother and sister beekeepers! for we are told on page 522 that "there never was a time in the history of beedom when the future looked brighter for the beekeeper than now"—and this in spite of foul brood, winter losses, the high cost of supplies, and all the other vexations attending our pursuit. It was indeed something of a surprise to be told that the bottling of honey has developed more than 1,000 per cent in the last few years. That is going some. But when I read on page 542 how one beekeeper in southern California produced 74,000 pounds from 280 colonies, it looks as tho it would require a good many bottles to take all that is produced.

* * *

That editorial beginning on page 521, "Good Honey Versus Sugar for Winter Food," is well worth reading several times by every young beekeeper and some old ones. We have usually had very fair success with sugar stores for winter, but after watching carefully for the last few years I am more and more satisfied there is nothing better for winter stores than early clover honey. While sugar syrup is often cheaper than honey, it costs a good deal of time and money to feed a thousand colonies, the most of them from three to twelve miles from home. And the loss of the vitality of the bees in storing and ripening 15 or 20 pounds of sugar syrup in the fall when they should be kept as quiet as possible, is no small item, for it shortens their lives just that amount in the spring.

* * *

That short sketch (page 530) of the life of Prof. Emilio Schenk is of unusual interest. We have those in this country who go out to teach beekeeping, but their expenses are paid, with a good salary besides. But here is a man that gives his time and traveling expenses for the good he may do. Evidently he has not neglected his family, for that picture (page 530) is one of the very choicest I have seen in many a day. I hope we may hear from him and catch something of his spirit, for it seems to be the spirit of the Master.

* * *

The Vermont beekeepers held a picnic or field day at the home of Geo. C. Spencer near Lake Champlain in Addison County on Aug. 25. There was a large and enthusiastic attendance. Mr. Selser of Philadelphia was present and added much to the interest of the occasion.

OUR FOOD PAGE

Stancy Puerden

IN the past three years many stories of the beneficial effects of honey in the diet have appeared on this page; reports of individuals who could digest honey when they could take no other form of sweet without suffering indigestion, and stories of others who believed their gain in health and strength had been due to the use of honey. There was even one story of a prominent business man, suffering from a severe case of mal-nutrition, who, by the use of an almost exclusive honey diet, built up in weight from 90 odd pounds to 160 pounds and vigorous health, after his physician had tried in vain to find a diet which would agree with him.

In telling all these various stories I have always made it a point not to exaggerate them in the slightest, and in nearly every instance have put the case for honey less strong than it was told to me. Altho an enthusiastic believer in honey I know that our minds have a wonderful influence over our bodies, and that some of these beneficial effects must be attributed to the fact that the individuals who ate the honey had faith that it would benefit them, and it therefore did.

I might add that after the publication of any of these honey articles I almost invariably receive letters telling of similar cases known to the writers.

WHILE we beekeepers and honey lovers have no doubts as to the value of honey as a food, yet it is a fine thing for the industry to have a nutrition expert of the highest authority corroborate our belief. That nutrition expert is Philip B. Hawk, who occupies the chair of the Department of Physiological Chemistry and Toxicology of Jefferson Medical College, Philadelphia. He has conducted much research work as to the digestibility of various foods as well as exhaustive feeding experiments upon animals to determine the presence or absence of vitamines in certain foods, and he is well known to the general public by his series of articles in the Ladies' Home Journal on digestion, and also on vitamines. He is also a frequent contributor to the best scientific journals.

There are any number of nutrition experts who are just as able as Philip B. Hawk, but I doubt if any of them are so well known to the lay public of this country, a fact which makes his statements especially valuable for reference.

LAST month I wrote about his finding the vitamine water-soluble B in extracted honey and the vitamine fat-soluble A in comb honey, and this month I am going to tell you briefly of his experiments as to the digestibility of honey, and then tell you more about vitamines.

The experiments were carried out upon a normal man to determine the influence of honey upon gastric digestion. He was first given 40 grams of whole wheat bread alone. The contents of the stomach were analyzed for acid and pepsin at 15 minute intervals and an accurate and detailed record was kept. The experiment was then repeated, adding to the bread half its weight in honey (20 grams).

The following quotation tells the results in Prof. Hawk's own words: "An examination of the chart will show that the bread with honey was digested and left the stomach as quickly as the bread alone. Similar pepsin values were obtained, and while there was a slight depression of acidity such as always follows the ingestion of foods containing much sugar, digestion was completed as soon as with the bread alone, altho the addition of the honey had practically doubled the food value of the product from the energy standpoint.

"The use of honey with bread and in similar ways would, therefore, appear to be generally preferable in the case of children to the eating of candies. Honey serves to make the highly nutritious bread far more palatable, leading to a greater consumption of body-building foods instead of depressing the appetite, as is likely to be the case with candies which are eaten between meals. At the same time honey furnishes the body very considerable amounts of energy in the most available form. The high place given to it in the diet is therefore well deserved."

In quoting the above from Prof. Hawk we should always couple it with his statement, published in the September Gleanings, that comb honey contains distinct amounts of the fat-soluble vitamine. You will remember that he said honey added to the diet of white rats, which were being starved of the fat-soluble vitamine, produced the same effects as 5 per cent of butter fat, the latter being the richest known source of fat-soluble A. Remember also that his experiments indicated that that there are small amounts of the water-soluble B vitamine in extracted honey. Therefore when we give a child bread spread with comb honey we are not only increasing the energy value by a large percentage, but are providing appreciable amounts of the fat-soluble vitamine so essential to growth, especially in the diet of the young. And, in addition, honey contains in minute quantities practically all the soluble minerals found in the human body.

ON account of lack of space in the last issue I merely alluded to the fact that Prof. Hawk's feeding experiments indicated that there are no anti-scorbutic vitamines, called water-soluble C, in honey. His experiments to determine this were conducted with guinea pigs as the victims; for they were victims, developing symptoms of scurvy as soon on the diet containing honey as they did on a diet known to be deficient in water-soluble C, altho otherwise balanced.

An interesting corroboration of this report occurs in an account of three men who were separated from Stefansson's party during his polar exploration. These men depended largely upon some cached foods which they had found—flour, salt pork, butter, honey, sugar, pilot bread, preserved fruit, pemmican, meat extract, dried fruit, rice, beans, and peas. They all three developed scurvy, but were promptly cured when fed large amounts of meat, mostly raw.

Note that the honey was in this case in very good company, for the other foods mentioned were valuable even if they did lack the anti-scorbutic vitamine. The best authorities agree that even milk is of only moderate value as an anti-scorbutic, and loses most of the value when pasteurized or boiled. That is the reason that orange juice is added to the infant's diet when it is fed pasteurized, sterilized, or condensed milk. It has also been proved that milk is by no means rich in water-soluble B altho it contains it in small amounts.

In spite of Stefansson's experience, feeding experiments with animals have never indicated that meat is very rich in water-soluble C. But the men of the Stefansson expedition ate it in extremely large quantities, including the fat and certain internal organs not generally eaten, and a large part of it was consumed raw. Water-soluble C is found in living vegetable and animal tissues, in largest amounts in fresh fruits and green vegetables.

THERE, you think I am wandering miles from my subject, don't you? But there is method in my side trips, altho it may not be apparent. Now that we know there are vitamines in honey we ought to be well enough informed to be able to talk intelligently about the three kinds, always remembering that history is in the making as regards vitamines, and that something new is constantly being discovered. As my big boy quotes Latin to tell me "Repetition is the mother of education," so please forgive me if I go on to talk a little more about the vitamines, water-soluble B and fat-soluble A.

Water-soluble B occurs more widely in plant than in animal foods. It is found in practically all fresh vegetables, in cereals from which the germ has not been removed by so-called refining processes, in rice polishings, in the heart, kidney, brain, and liver of animals, and in yeast, the last named being the richest known source of this vitamine. Water-soluble B is essential for normal growth and reproduction, and its absence produces the diseases polyneuritis and beriberi. While there is little danger of well-defined cases of these two diseases in the mixed diet of civilization, the best authorities agree that there is a danger of a deficiency of this vitamine in the modern diet with its overrefined foods and its enormous amount of canned goods; for the long heating necessary to sterilize canned foods is known to weaken and destroy the vitamine content. This deficiency is believed to be responsible for much ill health along the lines of polyneuritis and beriberi, but less well defined.

FAT-SOLUBLE A is found in abundance in the fat of milk, the yolk of egg, and in the green, leafy vegetables, such as spinach. It is also fairly abundant in fish oils, such as cod liver oil and even whale oil. I wonder of what value it will be to the world in the latter-named oil, if it smells like the vile stuff I have used to spray my rose bushes.

Oleo oil contains a fair amount of fat-soluble A and therefore the oleomargarines contain it also, but not the nut margarines made wholly from vegetable oils. However, we are warned by the nutrition experts that oleomargarines are not to be considered in the same class as good butter in providing the organism with the fat-soluble vitamine.

The fat-soluble vitamine is necessary to growth and development, especially in the young, and it is necessary to the maintenance of health in the adult. Its absence causes an eye disease, xerophthalmia, sometimes so severe as to cause blindness. Of late it appears that rickets in infants may be connected with the absence of the fat-soluble vitamine.

In the past few years much has been added to the knowledge of vitamines, not only from laboratory experiments but by observation of human experience in inadequate war diets in Europe. Also a form of partial blindness has been observed to be prevalent in certain lumber camps where the only fat available was that from cured bacon, which would be entirely lacking in the fat-soluble vitamine.

TO be consistent, here is a point which needs emphasis, even if I have a whole family of perfectly good relatives interested in the honey-bottling business, to say nothing of hundreds of beekeeping friends producing extracted honey. You know we have always plumed ourselves that honey is nature's own and only concentrated sweet, uninjured by any so-called refining processes. But now Prof. Hawk's report of the fat-soluble vitamines in comb

(Continued on page 631.)

Beekeeping as a Side Line

Grace Allen

ONCE several years ago I read of some beekeeper editor who confessed a fondness for articles on beelore that were written on scraps of paper smeared with propolis, because, forsooth, they were so evidently the product of a genuine beekeeper. I could see that favored type of writer in my mind's eye—a nice old man, a bit sticky as to fingers, sitting on a hive, with a pad of paper and a stubby pencil. Being a typewriter devotee myself, and not a nice old man, the closest I usually approach to my own treasured picture of a correct bee writer is to sit out among the bees with my little machine before me. So here I sit today. But it is almost impossible to write. There is something about the way the bees are humming that takes all my proper sideline thoughts away and weaves them into dreams. And shall there be dreams in a department on ''Beekeeping as a Sideline''? To be sure, beekeeping would not be my sideline, nor one I would care often to write about, if it shut the door on dreams. But tho there have been many things in this particular department in months gone by, this really is, you see, a journal about bee culture, and the Editor questions the propriety of admitting other things. Probably he's right, especially when it comes to mere dreams of beauty and wide spaces and flaming life and days to come and God. But I'm afraid I'll have to begin writing indoors where thoughts are more easily controlled, foregoing the propolis stains on my paper and the humming of bees in my ears, to get away from the distracting bigness and beauty of this lovely world. But all true sideline beekeepers will agree that this gentle singing silence, laying its blessings on our souls, is one of the things that keeps us with our bees. It is not so much the money, nor to any great extent the honey, that brings us away from our other work to where the bees strike their shining trail across the sun. A great sense of something big and fine and high and soul-nurturing clings about a country bee-yard, like some unmeasured garment of the Unknown, the hem of which we sometimes touch with yearning or with rapture or with dream.

* * *

It really isn't strange that these bees of ours make us thus forget our chosen lines of thought in the days of early September. This noon the earth was dark and clouded, and when the sun came thru and flooded the hives, how the young bees did pour out into the light! Before hive after hive they swung and swayed and circled, filling the air with the sound of young wings. Just so fleetingly and hungrily they claimed their playtimes all during August, such a rainy month it was. Only eight clear days they had between July and September, says our practical, sign-reading, record-keeping weatherman; and only two so far this month, today being September eighth.

During the first part of that rainy spell of late summer, I sighed often thinking how the bees were being kept from the fields; and how they must be consuming all the nice clover honey we had left them (one shallow super per hive). Yet little by little the hives grew heavier. They had started gathering honeydew in July, and neither the usual sun nor the unusual rain of August stopped them. In it came, mixed of course with heartsease and a little sweet clover and other nectars, and finally they so surely had all they needed that we took from a score or more hives the supers of white clover honey we had left. But alas, a considerable part of the light honey had been eaten out and replaced with the honeydew and late honeys.

Local beekeepers have seldom had so much honeydew. Everyone is frankly troubled over the right thing to do with it. Nobody really wants to eat it or sell it or leave it for the bees to winter on. If there were only a little, it could be saved for spring feeding, but there's too much of it. A few beekeepers have boldly put it on the market, heavy with honeydew; and customers, expecting the same fine honey they had bought earlier, have registered many complaints. One beekeeper showed it to a baking concern, and they offered him about half what he had received in thousand-pound lots for his white honey.

* * *

I'm afraid there weren't any bees on those combs with the queen-cells, Mr. Pritchard, that we gave to the colonies whose queens we had just killed. Thus the cells were doubly ''unprotected.'' Probably that explains our failure. But I doubt if this can account for Mr. Hassinger's experience of 50 per cent of such cells destroyed; for he speaks distinctly of giving combs with adhering bees, when outlining his own system.

You are right, too, about the misunderstanding of the term ''unprotected cell''. I have always thought of an unprotected cell as just plain unprotected. Since ''the bees which would naturally adhere to such a comb are nearly if not quite as much protection to a queen-cell as would be a spiral cell-protector,'' perhaps we ought not to call a cell thus protected an ''unprotected'' cell.

* * *

The year will finally come, earlier perhaps than some dare hope, when box hives will be but relics of a past era. Season after season sees old apiaries undergoing the change from "gums" and antiquated ideas to movable-frame hives and modern beekeeping. Of course, it is only in the ranks of sideline beekeepers that these box hives are to be found, as commercial beekeeping would be impossible with them. So those of us who are eager to see the stigma of non-progressiveness removed from the name of sideline beekeeping are particularly interested in the modernizing of these old ill-kept yards. A really wonderful work has been done within the last few years in all sections of the country, quite notably in North Carolina. I suppose those of us who have never had the experience can scarcely appreciate the constant deepening of delight and satisfaction that a real bee-lover, who had never known anything but boxes and logs, gets from his new hives and his widening knowledge and increased skill.

John M. Weavil of Kernersville, N. C., is one who has made this important change, and here is what he says about it: "My grandfather was an old-fashioned beekeeper and gave me a colony when I was about 15 years old; so I have been a beekeeper for about 18 years. I continued as my grandfather did, till 1916, but it is needless to say I got nothing out of it. But I did not know any better then. What I most wish is that I had known what little I do now when I started."

In 1916, as soon as he found out about these better methods, he made his new start, transferring five colonies to new hives and introducing Italian queens, and they came thru the winter so well that "1917 gave me the bee fever right." The last I heard he had 30 colonies of Italian bees in modern hives, A B C and X Y Z of Bee Culture, Dr. Miller's "Fifty Years among the Bees," and Gleanings. He is a farmer with a mechanical bent, and has been able to make some of his hives from licorice cases obtained from a tobacco factory. Like many of us he had a hard time with the swarming mania of last year. "As for keeping bees for pleasure or profit," he wrote at that time, "I have been trying to keep them for both, but this everlasting swarming has about taken all the pleasure out of it and I fear most of the profit." Which shows that he has progressed a long step in his undertaking of honey-production.

John C. Weavil in his apiary

Then down in Mountville, Ga., is a young lad not yet out of his "teens," John C. Hogg. About four years ago he began "studying, thinking, and observing bees" and this is how it happened. His father had quite an apiary, all in box hives. They kept hearing more or less about "patent hives" and finally in a farm journal they saw an advertisement of bee supplies that resulted in an order by his father for five hives with shallow supers, and a book on beekeeping. "Well, we got them," John continues in his letter. "The book was looked thru by the whole family and then laid aside. Nobody seemed the least bit interested. Then I began to read it and soon became interested, interest grew into fever, and now I have the worst ever known. I had no idea there was so much to learn about the little fellows."

Apiary of John C. Hogg.

That first summer his sisters came home from a fish-fry one day, telling about a kind-hearted old miller who had some bees in these new hives. It wasn't long before John managed to join a fishing party going down that way, but instead of fishing he stayed at the house and mill, talking bees with J. T. Perry, the old and crippled miller who kept bees in modern hives. It was "Uncle Perry," indeed, who told him about Gleanings, giving him an old copy. He promptly subscribed and hasn't missed an issue since, "and with it I have got the Townsend Bee Book and A B C and X Y Z of Bee Culture. I have read every article available on bees since the first issue of Gleanings arrived. I have recently purchased a kodak and am sending you one of the first views I ever snapped with it."

It is only fair to add that he closes a later letter thus: "I believe that is about all I have to say except that I was about to offer my kodak for sale because you tell me there is more to learn about photography than about bees!"

FROM NORTH, EAST, WEST AND SOUTH

In Northern California.—Present indications point to but half a crop in our section of the State. There are a few districts, however, that already have secured or expect to secure a full crop; but the great majority of beekeepers report that they will get but half the honey produced last year. The entire season has been decidedly freakish. In most places bees hardly held their own. On the deciduous fruits and mustard and other spring bloom they fared better, but the flow was short from these sources owing to lack of moisture. The orange flow was normal, but that from the sage was almost a total failure. Where the frost did not injure the eucalyptus buds a good crop of honey was harvested during May and part of June. Ordinarily June is not a very good honey month; but this season, in our central part especially, it has proved one of our best. Conditions at that time indicated a good season, but July and August were off months with very changeable weather. Several times alfalfa started to flow freely, only to be interrupted apparently by atmospheric changes. Honeydew along the rivers started quite a bit earlier than last year, but a week of very warm weather in August seems to have killed off a considerable quantity of the aphids. A thunderstorm with rain in varying amounts in different parts of the valley followed, and it is believed that the rain where heavy enough washed a considerable number of the aphids off the willows. The large green louse, reputed to be the best of honeydew-producers, has not been seen this year by Herbert Lynch, a close observer, and since the ladybugs have been in large numbers it is believed that these predaceous insects are responsible. The fall bloom after the August showers looked fine, but up to the present time (Sept. 9) has been yielding nectar very sparingly. A well-known and large honey-producer in Merced county reports the total loss of 200 colonies thru poisoned nectar from jackass clover. In Stanislaus County bees have been working this clover for several weeks, with no losses reported locally.

We can report two eucalyptus groves less than 20 miles apart, the one yielding several tons of honey and the other less than one-half ton. Here the difference in yield can be detected, as the grove that yields so little has been subjected to a temperature several degrees lower than the other, causing the death of most of the buds. There are also two honeydew localities less than 10 miles apart that show a difference in yield per colony of from one to five pounds daily. The causes contributing to this difference may be too hot a temperature (possibly only a matter of two or three degrees, as the aphids may succumb at a certain temperature ranging between 100 and 110 degrees), rain in sufficient quantities to wash the aphids off the leaves, insect and bird pests, and unquestionably other causes, principal among which are atmospheric changes. We have also had this year alfalfa localities less than 15 miles apart where one locality has produced over 150 pounds per colony and the other not more than 50 pounds. In these localities the temperature and moisture conditions and the amount of wind were apparently the same, and the casual observer would be at a loss to account for the divergence in yields in the two localities, where, it must be added, the amount of bloom and the condition of the bees were nearly the same for both sections. It is gratifying to know that Dr. E. F. Phillips of Washington is deeply interested in locality problems and is at present carrying on investigation work along such lines. Any and all observations that beekeepers may make along these directions are very valuable, and the writer believes that there is no question but that our bee journals will be glad to print such observations. No doubt the character of the soil, its moisture content, and the question of soil drainage, as well as the all-important atmospheric condition, are important contributing factors toward the variance in nectar secretion.

Modesto, Calif. M. C. Richter.

In Southern California.—The writer has been spending the month camping in the mountains of Tuolumne County. About 15 were in the party, and a gala time has been enjoyed. The flora is very scarce at this season of the year. The honeybee was looked for but was found wanting. An insect that looks a little like a honeybee was found working on a small patch of blue curls that was growing on the rocky hillside. Beautiful pines, firs, and oaks, together with buckeye and poison oak, cover the mountains. Practically none of the land is level enough for cultivation.

Alfalfa as a honey plant yields much better in some localities than in others. Usually the first crop, which has been growing in various degrees since the fall before, is cut just as the first blossoms appear. The second cutting, which is the one that furnishes practically all of the surplus honey, is the one that blooms most vigorously. It seems to put forth all its efforts toward a full bloom, and, if let alone, will furnish the best seed crop. Localities where the alfalfa is left for seed are the ideal places for the beekeeper. When followed by sweet clover, as it is in many western sections, a combination is found that is giving us much of our western honey crop.

Corona, Calif. L. L. Andrews.

FROM NORTH, EAST, WEST AND SOUTH

In Texas.— At the Farmers' Short Course, held August 2 to 7, Prof. S. W. Bilsing, professor of entomology, gave a course in beekeeping. As the meeting is largely attended by the county agents and their organizations, many beginners in beekeeping were among the number. It is very probable that next year a week's work will be given.

The annual session of the educational branch of the Texas Honey Producers' Association, the 28th annual meeting of the beekeepers of Texas, was also held recently. Up to four years ago these meetings were carried on by the Texas Beekeepers' Association, and this year this old name was again assumed. So we now have the Texas Honey Producers' Association, a co-operative buying and selling body, and the Texas Beekeepers' Association, an educational body including all beekeepers who wish to belong. The program this year contained many numbers of great interest. The reports of W. C. Collier and E. G. LeStourgeon, delegates to the meeting of the Texas Honey Producers' League, were well received. The paper of Dr. M. C. Tanquary, state entomologist, giving the progress of the foul-brood work in which he outlined the new policy of the Division relative to inspection and treatment, was heartily endorsed by all present. E. B. Ault of Calallen sent a paper on shipping bees in combless packages, which attracted a great deal of attention, as nearly every beekeeper in Texas can see possibilities for the increase in their business by the selling of live bees. The reports of the secretary and treasurer showed that the beekeepers' section of the Farmers' Congress had the largest enrollment of any section and paid the greater share of the expenses of the congress. Every beekeeper in attendance went away carrying with him the desire to return to a far larger and better meeting in 1921. Because of the lack of interest in the Farmers' Congress, it is doubtful if this meeting will be held next year, but arrangements are already on foot to hold a meeting of the Texas Beekeepers' Association during the short course of 1921, at which time a beekeepers' school will be conducted as a part of the regular short course.

The condition of the honey plants thruout the State indicates a normal fall honey flow. The rains, which occurred during the second week of August, make conditions very favorable for a honey flow next spring, especially another crop of horsemint, as the rains came just after the horsemint seeds had ripened. A statement was made during the beekeepers' meeting at the Farmers' Congress that the honey-producers of Texas had already harvested the largest and highest priced honey crop ever produced in Texas. This statement passed unchallenged in an audience of 150 beekeepers. It is safe to say that one-fourth of the year's honey crop has not yet been taken from the hives. There is a strong flow from cotton thruout the black land section. T. W. Burleson of Waxahachie was asked to average the daily flow from cotton in his section and found that during the first week in August his colonies were storing two and one-half pounds per colony per day. There will be an immense blooming of boneset and bitterweed this fall, but the broomweed is not showing up in as great numbers as it did last year.

During the beekeepers' meeting, a statement was made by a prominent beekeeper that it was a matter of interest to him that the boll weevil was less severe on cotton in the vicinity of his apiaries than elsewhere. This statement was substantiated by the remarks of a large number of beekeepers present. While these men had no definite data with checks, they are convinced that the bees control the boll weevil. This presents a new field of investigation in the very interesting subject of the relationship which exists between the honeybee and the cotton plant.

An attempt has been made to get the average production per hive for the various sections of the State. Up to the present, the cotton section reports an average of 50 pounds. This includes yields from horsemint and cotton. The southern part of the chapparal district, where the yields are from huajillo and horsemint principally, the average was 92 pounds. In the upper edge of the same section where horsemint, mesquite, and white brush furnish the most of the honey, the average was 80 pounds.

W. O. Victor of Uvalde, in commenting on shipping bees in carload lots, made a statement that in 15 carloads of bees shipped out, there was a loss of only five per cent. He further stated that he had shipped in box, cattle, and refrigerator cars and that if the icing stations of the roads were near enough together, the refrigerator car would be an ideal way of shipping bees; but, as ice was hard to obtain in the section of the country thru which the bees passed, he preferred to ship them in stock cars. In summing up his talk on migratory beekeeping, he said that, while he had made money in shipping bees long distances, he believed that there is more money in moving bees to locations which are nearer together, using the limit of distance between the apiaries as that distance which can be traveled by an automobile truck with economy. He finished by stating that he believed about 200 miles is as far as one should move bees, taking everything into consideration.

College Station, Texas. H. B. Parks.

HEADS OF GRAIN FROM DIFFERENT FIELDS

The ''Phillips Plan'' of Packing Approved. Last winter nearly all my colonies were packed in quadruple packing cases, and I'm glad they were. I had a few that I wintered in single, and some in double 8-frame stories without packing, so that I could compare them with those packed in the big cases, to see if packing would pay in this part of the country.

Last December was a month that broke the record here of the last 32 years. The thermometer went down as low as 22 below and as high as 74 above zero, with intermittent cold and warm weather, which is necessarily hard on bees. It was warm enough in the middle of January for the bees to be flying almost every day.

Those in the big cases with their entrance of just one of the five ⅜-inch holes open, kept their entrance-holes open just as well as those bees not packed, with an entrance ⅜ inch by 4 inches. There were but very few dead bees in front of the packing cases, while those not packed lost lots of bees, probably 50 per cent.

I had some colonies packed on a modified ''Demuth Plan,'' four 8-frame hives standing on end in a large case. I had six of these cases, but did not like this way of packing them as well as the ''Dr. Phillips Plan,'' with double story. The former I have to unpack quite early to provide room and stores; while the latter can stay packed till harvest begins, as they have all the room and stores needed—all good colonies, and young queens.

The quadruple cases have not come into any use here yet. In fact, I'm the only one around here that I know of, who is using them. G. A. Pauli.

Fowler, Colo.

* * *

Tropical Supersedure of Old Queens. I have noted in Gleanings the different views of Dr. Miller and A. Butsch, in reference to supersedure.

In Pennsylvania I found bees almost invariably started queen-cells in the spring or fall. In midsummer supersedure seldom took place. I rather think the cold winters have the effect of inducing the bees to feel the need of larger numbers for a working force. So when the bees find their queen is beginning to fail, she is promptly superseded.

In a country where a three-frame nucleus will winter as well as a full colony there is not this necessity, and I believe this is one reason why the bees do not bother with superseding the failing queens. After spending seven years in Porto Rico I can join with Mr. Butsch, at least in part. Colonies here, if allowed to, will to a great extent seldom requeen. They will dwindle down until the colony is ultimately robbed out, because there are too few bees to defend their entrance. The mortality of

A winter scene in Mr. Pauli's apiary showing some of his big packing cases.

HEADS OF GRAIN FROM DIFFERENT FIELDS

mating virgins here is frequently 50 per cent. This undoubtedly adds its evil to the non-supersedure tendency. This means that a large proportion of the supersedure cells which may be started, never develop into laying queens.

Regular swarming queen-cells are produced much more rarely here than in the north. Five per cent swarming is the greatest I have had so far. This likely may also be a contributing cause to non-supersedure.

Last year the breeding queen which I was using began to fail. The strength of her colony dwindled down to about three and a half frames of bees, before they started cells (supersedure). I then added brood to keep up their strength to five or six frames, naturally destroying the queen-cells. Three times after this, they again tried to supersede. After that they made no further attempt. And the colony continued mostly on the brood that I added, until the queen died of old age.

Aibonito, Porto Rico. Penn G. Snyder.

* * *

Excellent Wintering in Sheds. Here is a picture of my little bee-yard of 14 hives, showing the way I pack them in these sheds. They have wintered 100 per cent for the last five winters, and they come out strong in bees even tho the winter temperature may go as low as 21 degrees below zero. These sheds are big enough so there is room for from two to six inches of shavings on the sides and about ten inches on top. The inner cover is glued down tight. The hives face the southeast, and there are woods on the north and the west sides. Last year I cleared $260 from the sale of honey.

The Wilcox winter bee-sheds.

Rt. 1, Kane, Pa. E. J. Wilcox.

* * *

Here Is a Very Young Beekeeper. The accompanying picture shows the youngest beekeeper in our county, Geo. O. Ray, Jr., three years old, with hammer and his first three frames made entirely by himself on his own small workbench. Sitting near is his little broth-

The three-year-old making up frames.

HEADS OF GRAIN FROM DIFFERENT FIELDS

er who also wants to make frames. "Don't, daddy, Jo will get my hammer," was the protest voiced just as this snapshot was taken, after carrying the bench, frames, and boy out of the shop nearby. Geo. O. Ray.

Fallon, Nev.

* * *

Another Way to Remove Pollen. It may be possible that Dr. Miller's, J. R. Crane's, or Mr. Alexander's method of removing pollen from combs will work, but I have my doubts. During the season of 1899 I moved from the alfalfa to the Arizona clover district on the west side of the San Joaquin Valley. There came a flow of nectar and pollen also. In less than two weeks my brood-combs were almost filled with pollen. I removed them to the supers and then to the extractor, where all the honey was removed. I then placed them in water for about 15 or 16 hours, when they were removed and given a good shaking and allowed to dry. The water caused the pollen to swell and the drying caused it to shrink, after which I gave them another shaking, when most of the pollen fell out. They were then placed in the brood-nest, where the bees removed the remainder, and the queen filled the combs with eggs. During a part of the season I was short of combs and did not dry them but placed them in the brood-nest wet and got just as good results. I would not advise using them wet except during hot weather and during a good flow of nectar.

San Jose, Cal. J. T. Dunn.

The Menace of Box Hives. It was my good fortune in 1907 to influence our authorities so far as to obtain legislation to abolish box hives. Gleanings at that time did not agree with such drastic measures, but believed the evil would cure itself; in fact, it held out the hope that foul brood would eliminate careless beekeepers by destroying their bees—a theory that was altogether foreign to our experience in New Zealand, and one which I could not entertain for a moment.

In my own native country (England) it has been the custom in the past to recommend beekeeping to the poorest of cottagers—people who could not afford to purchase proper frame hives and literature to guide them. Straw skeps and common boxes, with the accompanying sulphur-pit, were much in vogue. Of course, one can sympathize with those who wish to keep bees to bring in a few dollars, but can not afford to conduct the business in proper lines. But if such beekeeping is a menace to the business generally, then we have no right to encourage or tolerate it. Beekeeping in New Zealand was going to the dogs thru the same ignorant and careless beekeeping; but, thanks to drastic legislation, it is now established on a sound commercial basis. I can see no prospect of improvement in control of bee disease in any country until box-hive beekeeping is banished. It will come in time, I am sure. Isaac Hopkins.

Auckland, N. Z.

[illegible] and Pacific counties, Wash., giving a demonstration of treatment [illegible] meeting held June 26 last at the home of W. L. Cox at Elma, [illegible] in the coast counties of Washington.

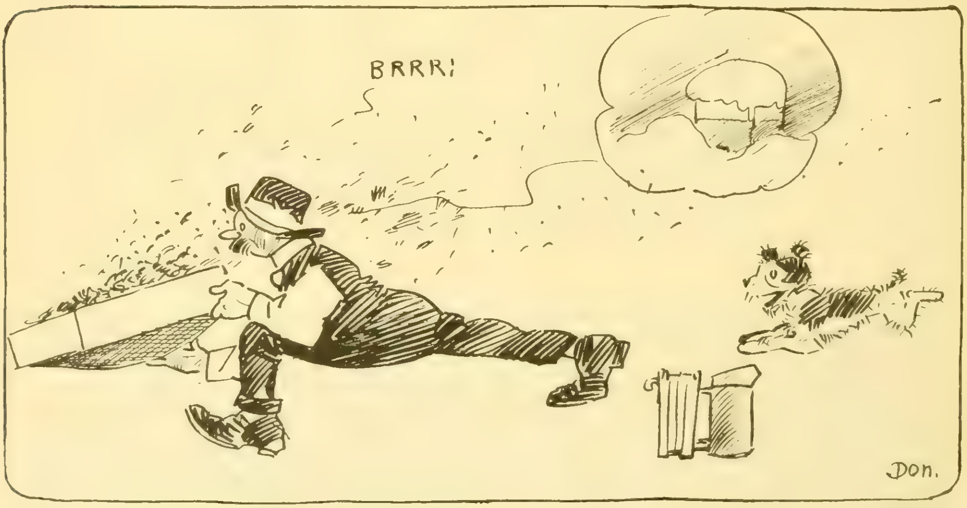
HEADS OF GRAIN FROM DIFFERENT FIELDS

What Disease Symptoms Are They? E. J. Ladd's article in the August number, answering J. L. Byer's of July Gleanings regarding his bees dying off, is far from being true, else several beekeepers along the Verde and Oak Creek Valley would be much enlightened by it. The malady described by Mr. Byer is not a disappearing disease, for his bees do not disappear. He speaks of the bees being much agitated and with widely outstretched wings running to and fro violently trembling, until too weak or tired, they drop off on the ground, where a heap of dying bees and dead ones are accumulating until all but a few die. Only about six per cent of all colonies seem to have escaped. Those left are weak and it seems almost impossible to build them up. Moisture you say! Why we have had no rain since the last of February until the last part of August; dryest in 30 years. Ours is exactly the same as Byer describes. Few, yes, very few bees die any distance from the hive. My home yard, which is about 4½ miles away from the United Verde Extension Copper Company Smelter and which gets the benefit(?) of its fumigation every few days, was not affected. Moreover, I have brought and given empty and partly filled combs from the affected colonies to my home colonies without any ill effect, and weak colonies are being built up fairly well at home when transferred from the affected apiary. Our troubles happened the fore part of June. Mr. Mathews, our state inspector, pronounced it a strange malady, with which he had not the slightest acquaintance, a new bee disease, brother Ladd; yes about like recent diseases of our trees, shrubs, plants; yes, and animals.

Cornville, Ariz. L. Tissaw.

Winter's Coming.—By Bill Mellvir

(With Apologies to Walt Mason.)



The winter's approaching, the frost is encroaching, soon turning green verdure to gold; the evenings are chilly and straw hats look silly and are you prepared for the cold? These days are so snappy that you are quite happy, forgetting such weather can't last. You're basking at present thru days that are pleasant; but are you prepared for the blast? Old Winter is mixing his war paint and fixing to give us a jolt in the neck; the winds will be blowing, the rain will be snowing, and sleet will come down by the peck. From cold polar regions o'er icebergs by legions, the winds will come cutting like knives. They'll raise the Old Harry, the snow they will carry and plaster it over the hives. And are you preparing for winter rip-tearing, O knights of the smoker and veil? or are you just waiting till time to go skating before you prepare for the gale? Are all the hives heavy so winter can't levy a toll in starvation again? or are you too busy joy-riding with Lizzie to think of things other than tin? Say, are you providing some packing and sliding the hives in a good winter case? or are you still burning the coin you've been earning—still sinking it minus a trace? And have you provided a windbreak one-sided for checking Old Boreas' speed? And are you now blocking down entrances shocking? For winter is drastic indeed.

JUST NEWS

Editors

THE annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in the court house at Freeport, Ill., on Thursday, Oct. 19. B. Kennedy, 416 E. State St., Rockford, Ill., is secretary, and will supply information.

* * *

The following message of sympathy was sent to Mrs. C. C. Miller at Marengo, Ill., by the beekeepers attending the Ohio field meet at Medina on Sept. 10:

"We, the beekeepers of Ohio assembled at Medina, this 10th day of September, 1920, are greatly grieved at the announcement of the death of Dr. C. C. Miller, the most beloved keeper of bees in all the world, a man of action, a man of wisdom, a man who loved all nature—the flowers, the bees; and, above all, a man full to the utmost of love for his fellow men. The loss of such a one will be keenly felt thruout the beekeeping world. Therefore, we, the beekeepers of Ohio, extend to the family of Dr. Miller our deepest sympathy." (Signed F. B. Moore, Iona Fowls, J. S. Hine, Committee on Resolutions.)

* * *

Udo Toepperwein, 42 years of age, one of the best-known beekeepers of Texas, died on Aug. 7 as the result of blood poisoning occasioned by a slight scratch from a mesquite thorn. A few years ago his name was foremost among Texas beekeepers. In his time he greatly developed the Texas honey market, dealt in beekeepers' supplies, and served in every office within the gift of the Texas State Beekeepers' Association.

* * *

The second manual of the North Carolina Beekeepers' Association was issued in September. Its 22 pages are loaded with beekeeping matter of especial interest and use to North Carolina beekeepers. All in all, it is a very great credit to the Association, and an emphatic testimonial of the new and better day in beekeeping that has dawned in the Tar Heel State. The officers of this up-and-doing association are: Jas. M. Gibbs, Reidsville, N. C., president; W. W. King, Jr., Wilmington, N. C., vice president; J. E. Echert, Winston-Salem, N. C., secretary; these together with R. W. Etheridge of Selma, N. C., and D. W. Monroe of Chadbourn, N. C., make up the executive committee. The secretary especially gives unstintedly of his time and interest to the organization's welfare.

* * *

Despite very unfavorable weather, 375 Ohio beekeepers gathered at Medina on Sept. 10 for the annual field meet of the Ohio State Beekeepers' Association. Dr. Ernest Kohn presided in his usual happy way. The chief beekeeping talks of the day were given by Geo. S. Demuth and E. L. Sechrist, and bee demonstrations were given by Miss Fowls and Mell Pritchard. The eminent cartoonist, J. H. Donahey, delighted the crowd with a chalk talk on beekeeping. The A. I. Root Company acted as host, and, besides providing a cafateria luncheon and a tent auditorium, the big manufacturing plant and queen-rearing yards were thrown open to the inspection of the visitors. A feature of the day was the deep mark of respect paid to the memory of Dr. C. C. Miller. Not only were resolutions of sorrow and sympathy adopted and directed to the family of the deceased, but several of the beekeeping songs written by Dr. Miller were sung, and A. I. Root delivered a tender and beautiful tribute to the dead, speaking on "My First Acquaintance with Dr. C. C. Miller".

* * *

The 40th annual convention of the Ontario Beekeepers' Association will be held at the Ontario Agricultural College at Guelph on Dec. 1, 2, and 3, 1920. This is expected to be a great beekeepers' meeting, and notice is being given well in advance. The program will be given later. F. Eric Millen, Provincial Apiarist, is in charge.

* * *

Wisconsin produced during 1919 4,834,000 pounds of surplus honey, of which 18 per cent, or 836,000 lbs., was comb and 4,008,000 extracted. These figures issued by the Wisconsin crop reporting service are the first estimate ever made of Wisconsin honey production. This amount is an average of 54 pounds a colony, comb honey yielding 34 pounds per colony and extracted 61 pounds. There were 90,000 colonies in the State in 1919. The total value of the 1919 honey crop of Wisconsin is estimated at $1,207,730. On Jan. 1 the average price of comb honey was 32.6c; of extracted, 24.8c. The average value per hive is estimated at $8.50, a total value of $765,000.

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A letter from R. F. Holtermann of Brantford, Ont., states that the Hon. E. C. Drury, the new premier of Ontario, is a practical beekeeper; has kept bees in a modern way for years; has gone thru a siege of European foul brood, and is a subscriber and regular reader of Gleanings in Bee Culture. Mr. Holtermann adds, that "before becoming premier, Mr. Drury had studied out some methods of combating foul brood, of which the country is likely to hear in the not far distant future."

GLEANED BY ASKING

Iona Fowls

Questions.—(1) Is it advisable to put a super with sections on the hive in the fall and let the bees have it over winter and until the honey flow so that no spring feeding will be necessary? (2) Can the queen and drone trap be used to prevent after-swarms?

Minnesota. Harold Hanson.

Answers. It would not be advisable to leave sections on the hive over winter. It would be a very cold arrangement. The section boxes are so small that the bees do not enter them readily, and the combs in the sections are so new there would be little warmth in them. Combs that have been used for rearing brood are much warmer and better adapted for wintering. If the colony has enough food to last them over winter, the sections might be saved, however, and given the bees, placing above a queen-excluder in the spring before the bees would have a chance to gather nectar from the fields. (2) Altho the queen and drone trap could be used to prevent after-swarms, we do not recommend its use. It is much cheaper and more satisfactory after the first swarm issues to move the hive to a new location and tear down all but the one best queen-cell. When colonies are treated in this way they almost never cast after-swarms.

Questions.—(1) I intend to give my bees four or five standard frames of clover honey and would like to know the best way to give it to them. My extracting frames are placed nine to the super. I could take one extra comb out of the brood-chamber in the fall, and that would make room for the wider combs, but would the bees winter as well and build up in the spring as well when the combs were as far apart? (2) I had thought of uncapping them and putting them on over an escape-board at the time I have my combs cleaned out after the fall flow. Or, I could give them combs that were drawn from foundation and would be the right thickness for the brood-chamber, but have understood that bees winter better in old combs than on new. E. C. Hardri.

Ontario.

Answers.—(1) Since your extracting combs are so much thicker than the brood-combs, we advise removing two or three frames from the brood-chamber, and then placing the combs so that there will be a bee-space between all of them. If this leaves a space at the side of the hive, place a thin division-board next to the combs and fill the space next to the wall of the hive with packing material of dry leaves or planer shavings. (2) Altho it would be possible for you to feed the honey by uncapping it as you suggest we do not advise this, for it would be more expensive, since the bees would consume quite a little of the honey in removing it from the combs and storing it in the brood-chamber. You could use the method in case you have combs partly filled with honey, but would not advise it for entire combs of honey. It is true that bees do winter better on old combs in which brood has been reared, and yet, we never hesitate to give a colony a few extracting combs of honey in case they need them in the fall. We place these combs in the brood-chamber just at the side of the brood-nest. This will give the bees a chance to cluster on the old warmer combs.

Questions.—(1) How many pounds of honey should be in the brood-chamber of an eight-frame hive when ready for winter? (2) Is beebread as good a food as honey for winter? (3) What time of the year does the queen stop laying? Does she stop before you are ready to pack them for winter? If so, how long before?

Minnesota. Charley Krueger.

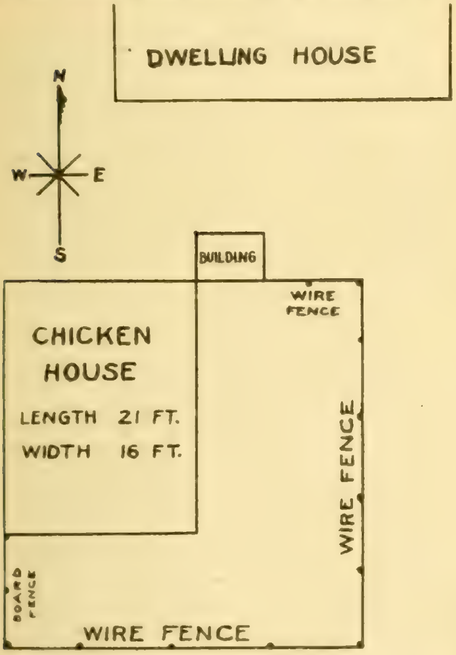
Answers.—(1) At least 30 pounds in your locality. (2) No, the stores should be honey or a good sugar syrup. Beebread will not suffice as a winter food. It will be needed, however, in the spring when the colonies are raising brood. (3) After the main honey flow the queen lays fewer eggs and in some cases, if old, stops entirely. In the fall, in your locality, we believe queens might be expected to stop laying at least by the middle of October. But the time would vary several weeks with the season and with the age of the queen.

ANSWERS BY DR. C. C. MILLER.

Questions.—(1) In regard to the size of the hive, I should be glad to make my Danzenbaker hives deeper by adding a rim to the bottom if you think well of it, making it a ten-frame Langstroth; or add more and make it a Jumbo L. hive. Of course, being a woman, I am trying to avoid heavy hives. Then, too, I read in an old issue of Gleanings, that J. L. Byer claims the ten-frame Langstroth is not so easy to manage as an eight-frame Langstroth or a Jumbo. I am more than anxious to avoid the swarming, as that is all my bees have ever done so far. The bees generally light too high, and we do not like to saw off the limbs of the trees as a rule. What would be your choice of the following?

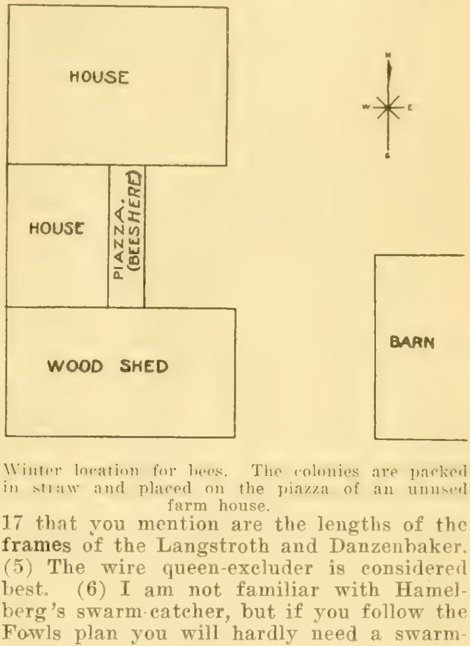
(a) Ten-frame Langstroth hive, wintering in two hive-bodies; (b) Jumbo Langstroth hive, wintering in one hive-body; (c) An eight-frame hive, 11 5/8 inches deep. I should be glad to have a hive made by most (or several) firms so I could order supplies that fit, but I also want something that I can manage too. (2) In regard to swarming, on page 409, July (1918) Gleanings, you say you like the Fowls plan. Is it the one described in the A B C & X Y Z of Bee Culture (1917 edition)? You also speak highly of Miss Fowls' description of the Demaree plan on page 338. But there is no page 338 in July (1918) number of Gleanings. Can you tell me where I can find the article referred to? I do not find it in the A B C & X Y Z of Bee Culture. (3) Do you think the best plan for me to use this spring would be to put a large hive-body over my Danzenbaker hives and trust to the bees and queen to go up and draw out the comb and spread themselves out to their own satisfaction? If so, when would you put the larger hive-bodies over the brood-chamber? (4) Are the Danzenbaker hives exactly the same in length and width as the ten-frame Langstroth hive or the Jumbo? I understood Dr. Phillips that they were, but the illustrations on page 359 of the A B C & X Y Z of Bee Culture show the Langstroth to be 17⅝ inches long while it gives the Danzenbaker as 17 inches long. If this is true I don't see how I could make my Danzenbaker hives over into Langstroth hives if I should decide to do so. (5) What kind of a queen-excluder is best? (6) Do you think Hamelberg's swarm-catcher practical? That is, would it be worth while making one? (7) What book can I get that wlil best suit one who is still at the bottom of the ladder in beekeeping. I can raise bees but can't produce honey as yet. (8) I live about 40 miles west of Albany, N. Y., and the winters are liable to be very severe; worse even than the cold, perhaps, are the strong west and southwest winds we have been getting for the past few years. Year before last the south wind blew down silos and blew off a number of roofs. There are no trees or hedges to afford protection to the grounds around the house where I might winter the bees and we have no cellar suitable for them. Therefore, if I keep bees, it must be outdoors. I might make use of the chicken house shown in the diagram, if I knew how to pack them properly, or, I might erect a small building. Possibly the single packing cases would be best for me. The packing of four hives in a case is pronounced a failure around this part of the State. I should be glad to know what you would advise for wintering bees here. (9) The accompanying drawing shows where I expect to keep my bees next summer. I would like to place them facing east but they annoy people going out of the house. Would it do to have them face the direction marked "south", which is really a little to the southwest from which we get strong winds?

New York. Adaline Eldredge



Proposed summer location for colonies on the south or east side of the inclosure.

Answers.—(1) It is not easy to choose among the three hives you name, possibly the Jumbo having the preference. You might like the Dadant, only it is not on all lists. (2) Likely you will find nothing better than the Fowls plan to help you against swarming. It is on page 338, June number. (3) Instead of putting the large hive-body over the Langstroth, put it under, putting an excluder between the two when you find the queen below. Do this any time before the queen becomes crowded in the old hive. (4) The Danzenbaker, the Jumbo, and the 10-frame Langstroth are each 20 inches long and 16¼ inches wide. The 17⅝s and 17 that you mention are the lengths of the frames of the Langstroth and Danzenbaker. (5) The wire queen-excluder is considered best. (6) I am not familiar with Hamelberg's swarm-catcher, but if you follow the Fowls plan you will hardly need a swarm-catcher, especially if you have all queens clipped, and clipping will save climbing trees, no matter what plan you follow. (7) As to books, you seem to have Root's A B C and X Y Z, and you can hardly better that, whether at the bottom or the top of the ladder. Dadant's Langstroth, and the books of Phillips and Pellett are all good, and you might like my "Fifty Years among the Bees" and "1000 Answers." (8) With regard to wintering, I think my first effort would be to make the cellar suitable for wintering, even if I had to dig a sub-cellar. The probability in that your cellar is too cold. Outside banking might succeed, or an extra inside wall. For outdoor wintering perhaps you cannot do better than to continue the piazza you are now using, always supposing that there is opportunity for the bees to fly when a warm day comes. Or, you could use the chicken-house the same way: only don't think of putting them in the chicken-house with no passage to the outer air. (9) Your bees can face southwest; but, if the meshes of your wire fence are pretty close and the fence higher than people's heads, the bees hardly ought to trouble passers by. C. C. Miller.



Winter location for bees. The colonies are packed in straw and placed on the piazza of an unused farm house.

BEES, MEN AND THINGS

(You may find it here)

VIOLATION of the pure food and drug act, by Swift & Co., brought the packing house a $100 fine in the United States federal court yesterday. The charge was that 'queen bee syrup' had been sold for pure honey, altho the substance contained glucose. It was brought out in the trial that a branch house had handled this and not the main office of the company, and in consideration of this the fine was light.''—Portland Oregonian, Sept. 1.

''While in Florida wife and I had a ride in Mr. Root's carriage drawn by the horse that gets fed air only—no hay nor oats.'' —S. C. Heisey, Lancaster County, Pa.

''The most of South California has had a fine crop of honey—parts of it, a second crop. My own crop was 16 tons, which involves some work.''—J. D. Bixby, Sr., Los Angeles County, Calif.

''After a cool wet summer, bees are in their glory now. Two ten-frame supers full of heartsease-goldenrod honey, and no time to seal it. Bees should make 150 pounds per hive.''—J. F. Garretson, Somerset County, N. J.

''With recent timely rains the prospects for clover for next season are improving daily and we indulge the hope that it will be in full compensation for this off year in western New York in particular.''—O. L. Hershiser, Erie County, N. Y.

''Our Spokane Beekeepers' Short Course started last night with stereopticon talk by 'yours truly,' and by the time of the second meeting, which will be held on the evening of Sept. 30 at the Chamber of Commerce, we expect to have 100 members enrolled.'' —Geo. W. York, Spokane, Wash.

''I am enclosing one of our county beekeeping letters just to show you our efforts to help beekeepers in our county. These letters on general beekeeping information are sent to about 165 beekeepers in the county, and the sheets dealing with seasonal beekeeping practice are sent to about 60 members of the county association.''—Ivan Whiting, Sheboygan County, Wis.

''This office is attempting to teach better methods of beekeeping along with the inspection work. We have beekeepers' tours in the counties where the inspection work is being done, and usually these tours come after the inspection work is over, and it is used as a means of getting the beekeepers acquainted in the community so that they will feel free to call upon each other for assistance in the treatment and eradication of bee diseases. We also have meetings with the county association, and these are usually run in one and two day schools in each county. We have these meetings before the inspection work opens in the spring, and at these meetings we usually plan when and how these tours shall be run in those counties. We find that this has been one of the greatest aids we have had in our work, as we get the interested beekeepers to make inquiries among their neighbors and find just where the bees are located, and we usually have a complete list of the beekeepers in each county before the work is started in the spring. Last season we inspected approximately 2,000 apiaries containing 20,000 colonies of bees.''—Frank N. Wallace, State Entomologist, Indiana.

''The Jackass clover flow is on and at its best now, and has been producing steadily since Aug. 20. Medium colonies are storing from six to eight pounds daily, and only a heavy rain or a frost will stop it. The honey is white of fine body. We have in Fresno County this year an estimate of not less than 30 sections of it in the northwestern plain. Sorry to say that is understocked with bees at present with about 10,000 colonies, and is good for twice that number.''—C. R. Snyder, Fresno County Inspector of Apiaries, California.

''At different times during last winter I mentioned the cellar built by us last summer, in which we were wintering 60 colonies. The cellar was partitioned off, and the bees were in a room 10 by 12. The temperature was 43 degrees always, no matter if the outside temperature was 25 below or 50 above. The ceiling is always damp for some reason—no doubt because of too low a temperature. Ventilation was good whenever a wind was blowing, but rather sluggish when the weather was ''muggy.'' Bees always had a ''hum'' among them, and I had an idea that the death loss was too heavy—about a bushel and a half of dead bees from the 60 colonies. But this included all the bees from three strong colonies, that unfortunately had combs of natural stores which granulated as hard as a board, the bees taking dysentery and smearing everything, and eventually leaving the hives and dropping on the floor. Right in the same tiers were colonies fed with sugar syrup, and they wintered in ideal condition—not a spot on the hives and the bees clustering quietly all winter. So, after all, I am at a loss to pass judgment on the cellar, for where stores were good it gave good results, and where the colonies died, it is doubtful if they could have wintered either outside or in the best of cellars.''—J. L. Byer, Markham, Ont.

TALKS TO BEGINNERS

By Iona Fowls

NOW that the beginner has his colonies all supplied with plenty of stores there remains only the task of packing them snugly for winter. This should be done early. In many cases the work will be done this month, but wherever the fall flow has continued brood-rearing so late that it is impossible to supply colonies with their requisite stores before October the packing will necessarily be delayed.

In these talks we have especially recommended the double-walled hive, but there may be a few who have purchased single-walled hives. If so, colonies in such hives in the north must be wintered either in packing cases or in the cellar.

Cellar Wintering.

As previously stated no one should attempt wintering in the cellar unless he has good stores and a dry, well-ventilated cellar that may be kept dark and at an even temperature of about 45 or 50 degrees. The entrances should not be entirely closed, but should be made small enough so that the mice cannot enter the hive. In general colonies should be put in the cellar just after their last fall flight and taken out in time for the first natural pollen. The time of putting in the cellar is discussed at some length in this issue of Gleanings under the title, ''Cellar Wintering''.

Packing Cases for Winter.

Single-walled hives that are not wintered in the cellar should be wintered in packing cases. These may be made to hold from one to four colonies and should provide for from five to six inches of packing on the sides and top and four underneath. Almost anyone can construct such a case himself from any cheap lumber he may happen to have. The entrance of the hive should be connected with the entrance of the case by means of a wooden bridge that prevents the packing from closing the entrance; for it is important that the bees have a chance for flight on warm winter days. With such packing as this an entrance of five ⅜-inch holes will probably be sufficient and in very cold weather two or three of these may be closed.

Wintering in Double-Walled Hives.

In our last issue we stated that those who do not intend to open their hives in the spring should leave all the frames in the hive, but those who are willing to take the extra trouble of examining their colonies and giving them more stores if necessary in the spring, might contract the brood-chamber by removing two or three frames and placing a division board next to the space left vacant. This space, which should be on one of the most exposed sides of the hive, should now be filled in with good packing such as lightly packed forest leaves, chaff, or shavings..

On top of the frames may be placed a mat or canvas just as large as the top of the hive, the mat being held up from the frames by a few small sticks placed crosswise of the frames so that the bees when in need of more honey may have a chance during the cold winter to pass from one frame to another without leaving the top or warmest part of the hive to do so.

Above this, place a four-or-five-inch tray slightly smaller than the telescope cover, so that the cover will slip over it readily. On the bottom of the tray burlap is fastened by means of wooden strips nailed on the lower inside edges, the burlap being left quite baggy in order that the tray will fit tightly to the top of the hive, thus preventing the wind from blowing in under the tray. About the best packing to use in this tray is dry well-packed forest leaves.

An entrance of ⅜ inch by two or three inches will be large enough. Hives should face away from the prevailing winds and should tilt slightly forward so that no water may collect inside. Considerable protection from the cold will be offered by a windbreak of shrubbery or high fence with two-inch spaces between the boards so that the force of the wind may be more or less broken up before reaching the hive.

Care During the Winter.

If the colonies have been prepared as we have advised, they will need no further attention during the winter months. If one's neighbors wish to go in the dead of winter with snow waist-high and take a peek inside the hive just to see if the bees are still happy, or, if they wish to shovel the snow away from the entrance and then fool around the entrance trying to poke out dead bees, why, just let them; but don't **you** ever be guilty of it. It is too costly an amusement, and you will take so much more pleasure next spring with live colonies than you possibly could with dead ones.

The Last of Our Talks.

This concludes our series of ''Talks to Beginners,'' but let the beginners all remember that we are greatly interested in their success and shall always be pleased to answer any questions addressed to Gleanings in Bee Culture. Lack of space prevents us from publishing more than a small fraction of these questions in our ''Gleaned by Asking'' department, but we are very glad to answer the rest by personal letter. We sincerely hope that our readers will feel free to take advantage of this offer.

OUR HOMES

A. I. ROOT

Come ye after me, and I will make you to become fishers of men.—Mark 1:17.

He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins.—James 5:20.

Ho, every one that thirsteth, come ye to the waters, and he that hath no money; come ye, buy, and eat; yea, come, buy wine and milk without money and without price.—Isa. 55:1.

I WANT to tell you a story, friends, that I have told you before—at least I have partially told it before. There is a particular reason now why I wish to tell it again. Something over 45 years ago, when this journal was first started, and the news had got abroad that I secured a barrel of honey from one colony of bees in one season,* I had a good many visitors; and, as I was a very busy man, it was sometimes a little hard for me to give each newcomer the time and attention I should have been glad to give. Well, one morning when I was especially busy, and I think the bees were busy also, a well-dressed nice-looking young man called and was very anxious to see my bees and ask me questions. He informed me at the outset that he was a runner for a music-publishing house in Cincinnati. He had gotten hold of a copy of our little journal and was full of enthusiasm regarding bee culture. He said something like this:

"Mr. Root, I have a very good salary, and I suppose I ought to be contented to keep on with my present occupation; but it keeps me away from home. If I could be with my wife and child and just make a *living* keeping bees I would be satisfied. Do you think it possible for one to do so provided he would be satisfied with a very small income? Of course I would progress as I learned by experience; but I should not be worried if I did *not*, at the start, even make a living."

I do not know just what answer I made. After giving him what information I could, a man drove up with a horse and buggy to take me out on a trip hunting wild bees. The A B C book had been started, and I had got where I wanted to write up bee-hunting. When I began that book I decided to put nothing in it from hearsay. Every topic was to be treated from personal experience if it were a possible thing. There was a veteran woodman living near us who, I was told, was quite expert in hunting bee-trees and taking out the honey. I had agreed with him to go out on a trip that very morning, and he was on hand with his tools and appliances. By the way, when I was introduced to the stranger I suppose he gave me his name; but I was so busy I did not take pains to remember his name nor usually those of a great part of my visitors. As I was preparing to step into the buggy, putting out my hand to the stranger, I told him of the proposed trip and asked him to excuse me under the circumstances. I was a little surprised to hear him say:

"Why, Mr. Root, can't I go along too?

As there seemed to be no particular objection, and my bee-hunting friend said he guessed three could ride all right, we started off. This bright well-dressed stranger was rather short and pretty well up in avoirdupois, and so I suggested that he might get rather tired climbing over logs, getting thru brush, etc., but he said he guessed he could stand it. Let me digress a little right here.

My life has been pretty well given to hobbies, as you may know, and sometimes I have more than one hobby at a time. I do not know just how it came about; but at that particular time I was taking music lessons, and a bright young lady was my teacher. I had progressed far enough to be taking little exercises on a sort of melodeon. Well, while we were out in the woods climbing over the logs I absent-mindedly began whistling a little melody I had been practicing on that morning.

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*In my review of volumes 1 and 2 I discovered that, even at that early date, I was not the only man who had secured "a barrel of honey," from one colony of bees in one season. Here is what I found on page 5 of Gleanings for January 1873:

Henry Hart of Palmer, Mich., writes:

"That swarm that had given us 400 pounds when I wrote you has since given us 100 pounds of fall honey, making a good 500 in all. Our surplus will not come much, if any, short of 3000 pounds from 11 swarms—no increase of swarms."

I afterward visited Mr. Hart and didn't we two have a big time in talking over and comparing our experiences? As I had been writing for several years for the American Bee Journal, Mr. Hart may have been a pupil of mine. I can not remember now, it was so long ago. I wonder if he is still alive; and if not, are any of his children still keeping bees?

The stranger finally remarked, "Mr. Root, that thing you are whistling is rather pretty; don't you think so?"

I stopped and looked around and then remembered that I was whistling the very thing my teacher had been trying to teach me just a few hours before. I replied, "Yes, I do think it is very pretty indeed. It is what my music teacher gave me for a lesson this morning." To my astonishment he replied:

"Well, Mr. Root, it gives me great pleasure to hear you say so, for the reason that that little exercise is one I composed."

I do not think I made any reply; but I stopped and looked him over from head to foot. I did not say anything by words, but my mental comment was something like this:

"Did you ever! And that nice-looking chap has the 'cheek' to claim that *he* composed that melody."

I dropped the subject for the time and perhaps I was not very sociable on the trip home. By the way, I should state that we found a bee-tree which was cut at the proper season later on. When we got back to my place I put out my hand and was about to ask the stranger once more to excuse me; but it seems he was not quite ready to be dismissed. In just a few words he said something like this:

"Mr. Root, I really beg pardon for hindering you further; but I have a special reason for wanting to see that little instruction-book that you are using."

I replied, "certainly." But I left him standing at the gate while I went in and picked up the book from the melodeon. He turned over to the exercise and said something as follows:

"Mr. Root, do you see that star at the end of the title of the little exercise in question?"

"To be sure, I see it. It refers to something at the bottom of the page."

"Will you be kind enough to read the line in fine print at the bottom of the page?"

This is what I read: "Composed by Dr. C. C. Miller, Marengo, Ill."

Then I looked up and said, "Well, what of it?"

"Why," pointing his thumb toward himself, "I am Dr. Miller, and this exercise was furnished for Root & Cady, publishers, Chicago."

Just then, as the slang phrase has it, I "sat up and took notice." Then he added something like this:

"Mr. Root, from the way your manner changed out in the woods you thought I was untruthful; but I decided to say nothing more about it until I could see your book."

"Dr. Miller, I humbly beg your pardon. I *did* think it was a little cheeky for you to claim that exercise as your own composition, and it just now occurs to me that you can probably play the exercise for us."

It was dinner time, and I think Mrs. Root and some guests were waiting a little impatiently for me to dismiss the stranger and come to dinner; but as our instrument was close by I invited him to come in and play the exercise for me; and then and there commenced my lifelong acquaintance with Dr. C. C. Miller. I think I asked him to give us a little more, and pretty soon Mrs. Root, her guests, and everybody else were listening to Dr. Miller's singing. Among other things he gave us such wonderfully inspiring old hymns as only Dr. Miller can give and did give. Among others was the old hymn, "Lead Me to the Rock, that is higher than I."

After entertaining us as he did, Mrs. Root, of course, insisted that he should stay to dinner; and we spent a busy afternoon; and he not only stayed to supper but late into the night. A young college professor, a relative of Mrs. Root, was with us; and as we were short of beds Mrs. Root suggested that we should be exceedingly glad to have Dr. Miller stay with us over night, if he and the professor could agree to sleep in one bed. This was done. Notwithstanding the pleasant visit that we had had, I could not quite get over the suspicion that the stranger had planned all this in order that he might sell us a piano, or something in that line; and when it came time for parting, before leaving he said, something as follows:

"Mr. Root, much as I love bee culture and outdoor pursuits under the great blue skies above, there is one other thing that I love more, than even the bees and flowers."

At this juncture I said to myself, "There, old chap, I knew it was coming sooner or later." But of course I waited until he explained further. Now, Dr. Miller has said several times that he has no recollection of what I declare followed; but this only illustrates the meaning of the beautiful passage where it says, "Lord, when saw we thee a hungered or thirsty, or a stranger, or naked, or sick, or in prison, and came unto thee?" Dr. Miller was so much in the habit (and I hope he is yet) of "fishing for men," as we have it in our first text, that he has quite forgotten all about it; but this, as nearly as I can recall, is what followed; and I am sure I am not mistaken, for it is one of the most important factors in the shaping of my life and my life work from that time to this:

"Mr. Root, I have been strongly attracted to you by your writings in the American Bee Journal and your little monthly, Gleanings in Bee Culture. You have a rare gift of getting people to listen to you; and no wonder, for the work you are doing is attracting a great deal of attention all over the land. Now, I *did* come here to learn about bees and bee culture; but I came more with the hope that I might suggest to you that if your little journal would hold up the Lord Jesus Christ before a suffering world it would do still *more* good than you are doing to develop the bee and honey business."

At this I replied:

"Why, Dr. Miller, there has never been anything in our journal in any way against the Lord Jesus Christ."

To the above he answered:

"He who is not for me is against me."

I stood rebuked; and just now, before dictating this Home paper, I have gone back thru the pages of volumes 1, 2, and 3 to see if there was not just a faint intimation in regard to "the Lamb of God that taketh away the sin of the world." I could not find anything of the kind—not a word of thanksgiving or praise to the great Father above who gave us the bees and the flowers and the sunshine. I do not think I promised Dr. Miller anything; but to make amends, as far as possible, for my neglect as shown in the early volumes of Gleanings, not only in every issue but on almost every page there is some reference, more or less direct to the great Father and to his only Son who *died* that *we* might *live*. Yes, the bright young stranger, on that eventful morning, *did* have "something to sell," but it is expressed in our last text, "without money and without price."

My lifelong friend Dr. Miller, as most of you know, has just recently, on account of age and failing health stopped writing for Gleanings. I think we have had more or less from him in almost every issue of our journal for 45 years. Just a few days ago I wrote him as below:

Dr. C. C. Miller,
Marengo, Ill.
My dear old Friend:

I don't know why it is, but for some time back my mind has reverted again and again to the time when you and I first met. Strange things have happened during all these years. Little did either of us know what was to be the outcome of that acquaintance when we tramped off bee hunting and I whistled that little exercise of your composition. I think that you said that day if you could just make a living keeping bees; stay at home with your wife and boy, etc., you would be quite happy. Well, that prayer (I think perhaps we might call it a prayer) has come to pass; and you said, too, you wanted to see my ability as a writer or teacher used in spreading not only bee culture, but the glorious news of Christ Jesus, our Lord and Savior A part of a hymn, just one stanza, came to my notice just a few days ago. Here it is:

> "From sinking sand He lifted me,
> With tender hand He lifted me,
> From shades of night to plains of light,
> O praise His name *He* lifted me!"

That little bee journal has been used after a humble fashion to glorify His name, and it's still doing it. I don't know how long it will last. May God be with you and the good friends in your home. No answer is needed to this, unless you are quite able; but I should be very glad indeed for a brief word from you or your friends to let me know how you are getting along in your old age. In some respects I really enjoy growing old. It relieves me from many responsibilities; but I am wondering how long I shall be able to read and write and get about and make garden and grow *the new Annual sweet clover*—one of the dear Lord's latest and most precious gifts!

As ever,
Your old friend and co-worker,
July 30, 1920. A. I. Root.

By the way, are you able to sing nowadays? I would travel a long ways to hear you sing once more, "The Rock that is higher than I."

As ever,
Your old friend and wellwisher,
A. I. R.

In response to the same he replies as follows:

Marengo, Ill., Aug. 7, 1920.

My good friend A. I.,

It seems good to get a letter from you. Makes me recall the first time I ever saw you, when we slept together and you talked till pretty late about bees and about having sap from maple trees go directly to the hive. But you didn't put your nightcap in my pocket as you did later on when we slept together at conventions.

At that time I didn't expect ever to be living in my ninetieth year as I am at present. And altho the years cannot be many until I enter the better world I find just as much enjoyment in this life as I did fifty years ago. Altho my weakened heart allows me—rather compels me—to walk softly all my days, yet I am free from pain and enjoy life to the full. I work quite a bit every day, and do a lot of resting. Today I've been cutting burdocks and cultivating gladioli. I had workt up quite a stock of gladioli, disposing of most of the flowers by sending them to the poor of Chicago, but when told I never could do much hard work again last fall, I disposed of some 5000 and have only 2000 left to play with. My special enjoyment is in the new varieties originated by myself, some 300 or more varieties. I rather think I've more fun with them than you do with annual sweet clover. That's only an adopted child of yours, while these gladioli are my own babies. Raising new varieties from seed is quite a gamble; if one gets one out of a hundred worth keeping one is fortunate. I have been quite fortunate.

Yes, I can sing nearly as well as ever, and it would be a delight to sing for you "The Rock that is higher than I", only I'd have to brush up on the words. Come and see me when I get settled in the mansions *prepared for me*.

Blessings on you.
C. C. Miller.

In closing it may be well to consider how far Dr. Miller ever realized his early ambition of being able to support his family by bee culture alone. For several seasons after that first acquaintance he had the usual ups and downs; and, as I remember, they were mostly downs; in fact, I almost began to wish he would give it up; but he stuck to it thru thick and thin. Now listen to this, which I get from page 298 of his book, "Fifty Years Among the Bees."

In the year 1913 he averaged a little more than 266 sections per colony from 72 colonies, spring count. Of course much greater results—that is, in the number of pounds—have been secured of *extracted* honey; but I do not now recollect any better record from comb honey. Let us figure a little. If he received even 20 cents a section for his comb honey (and I do not know but he got as much as 25) it would be over $50 for each colony.

This illustrates the wisdom of hanging on to your chosen pursuit, thru thick and thin, good seasons and bad. This one yield was secured in spite of the fact that he was, during that very season, fighting (at least to some extent) European foul brood. He thinks that, if it had not been for this disease, he could have done at least a little better. Just think of it, friends; a honey crop that sold for between $3,000 and $4,000 from an apiary of only 72 colonies, spring count!

P. S.—Our readers will doubtless perceive in reading the above that it was written before Dr. Miller's death. In fact, it was all in type when we received the sad news that he had already passed over to the ''heavenly mansions'' alluded to in the last words of his letter. Further particulars in regard to his death will be found elsewhere in this issue.

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THE NEW ANNUAL SWEET CLOVER UP TO DATE

We are still sending out seed and still planting seed and transplanting plants here in Ohio. The question is often asked, "If the seed is sown so late that it does not have a chance to bloom, will it winter over, say here in Ohio?" It will do so all right in Kentucky, Virginia, and other States still further south. But I wish to give the matter a further test right here in Ohio. The question is also asked if it will pay to use manure and other fertilizers in addition to lime. To test this I made a small bed and gave it a heavy application of old well-rotted manure. This was chopped up and thoroly mixed with the soil. Then to ascertain if there was any harm in giving too much lime, I raked in the lime until the ground was absolutely white. I did not know but it would kill the seed and plants; but I am glad to tell you that that little bed of plants is now just booming. Some of them are now over a foot high, and "just growing like weeds." When I go back to my Florida home I expect to carry along a lot of the plants and have the matter fully tested during the winter time in southern Florida.

PROBABLE PRICE OF THE NEW CLOVER SEED FOR 1921.

A good friend sent me the clipping below which was taken from some periodical published in Iowa.

BIG PRICE FOR CLOVER SEED. . . .

SHENANDOAH, IA., Aug. 20.—The Henry Field Seed Co. of this city has just sold twenty bushels of seed of the Professor Hughes new annual white sweet clover to the DeGraff Canning Co., DeGraff, Ohio, at $300 a bushel, or $5 a pound. Delivery is to be made as soon as the seed is harvested this fall.

For two years past I have urged seedmen to "sit up and take notice" in regard to this "new revolution in agriculture," as the Rural New-Yorker has it. It seems the Henry Field Seed Co. were the only ones to catch on. If any other seed catalog anywhere has mentioned or offered the seed for sale, I shall be glad to have a notice of it and I will give them credit.

Six thousand dollars for clover seed that grew on six acres of land is something worth while. See cut of Field's plantation on p. 560 of our last issue.

* * *

SCARIFIED SEED THE BEST.

I am sending a clipping I tho't would interest you, if you had not seen it in the daily papers.

Last fall I received a package of annual sweet clover seed from the A. I. Root Company. About a week after sowing it this spring, I got from Ames, Iowa, a small package of scarified seed, that came up before the other. One plant four months from sowing was 7 ft. 6 in. high.

Exira, Iowa, Aug. 26, 1920. Jno. Edwards.

* * *

GROWING WILD IN ALABAMA.

Under *separate cover* I am *sending* you a few plants of the "Annual Sweet Clover," thinking that they may be of interest to you. These plants were growing wild. The large stalk measured nine feet high when pulled; it grew in rich, moist bottom land; you will note the difference in the root growth. The other plants are the second growth this season, the first growth being cut for hay before it was in bloom, about July 10th. You will notice where the old stock had been cut, by the old, dried-up stub; and what is most interesting is how the plant branched out from the old stub. In a field of about two acres of nearly solid growth, I find most of the plants have branched out like the sample sent you.

I have also sent Prof. Hughes, Ames, Iowa, one very tall stalk, the largest I have found to date. It had a spread of branches of 5½ feet, and the root system was most interesting.

Allenville, Ala., Sept. 2, 1920. E. Eggeman.

* * *

I thought it might be interesting to you to know that I am one of the persons Prof. Hughes, in his letter of July 2 to Mr. A. I. Root, spoke of as being interested in the annual white sweet clover growing here. In fact, I am the one that sent him samples of plants and established the fact that the annual is growing wild here in this section. Well, Prof. Hughes came and spent some time at my house. We found him a most splendid gentleman, and he seemed to enjoy every minute of his two weeks' stay in this little village. While here he located several fields of the annual, containing in the agregate more than 100 acres. It is needless to say the discovery caused quite a little excitement and great enthusiasm for the annual. We have formed an association to be known as the "Alabama Annual White Sweet Clover Seed Growers' Association," to grow and market these seeds. We expect to market a few this year, and to plant a considerable acreage next year.

We feel that Prof. Hughes' visit among us has been of inestimable value to us all, and only wish he could come again.

Newbern, Ala., Aug. 28, 1920. F. A. James.

* * *

10 FT. 6 IN. HIGH.

The other day I cut one plant of that white sweet clover that measured 10 ft. 6 in.—"some clover" from one little seed. I planted some barley alongside of it, that is a little over 1 foot high. That white sweet clover is a wonderful plant. I think it grows well on poor land. If it is cut before it comes into bloom, it makes fine hay and grows much higher and faster than alfalfa. It is a good honey plant. The bees are working on it constantly, and some of it is coming into bloom all the time.

From the seed you sent us, I have got some sunflowers, one of which is 14 ft. high. If you stand under the sunflower and look up, it appears more like a small tree. Also, some of the yellow corn is 12 ft. high.

Locke, Calif., Aug. 16, 1920. O. J. Arfsten.

* * *

6 FT. 8 IN. IN 91 DAYS.

I saw in Gleanings a notice of your Sweet Clover growing 6 ft. in 100 days. That is fine, but I can beat it. I sowed a few seeds about June 1st and have plants now that are 6 ft. 8 in. tall in 91 days (will be in full bloom in a few days). Who can beat it?

Lawn, W. Va., Aug. 30, 1920. N. E. Duncan.

* * *

THE NEW CLOVER IN CALIFORNIA.

Last spring I purchased an ounce of the annual sweet clover seed from the Henry Field Seed Co. and planted it in five rows, ten rods long and three and one-half feet apart; but it is hard to tell where the rows are now. After looking at the picture on page 495 I went down to my sweet clover to make comparison, and found a great many plants over seven feet high, and I think decidedly more stocky; this was planted about the first of May, was irrigated and cultivated twice, and hoed once. I am sorry now that I did not use *three* or even *four* times the amount of land for this amount of seed, as it is entirely too thick to thrive, despite the fact that it looked as tho the lot of seed was largely immature. I expect to plant about five acres of this clover next spring. I have grown the Biennial sweet clover for several year, about five acres each year, and have 100 stands of bees. With best wishes to you and yours,

Montague, Calif., Aug. 8, 1920. L. H. Calame

* * *

THE NEW CLOVER IN ITALY

Last fall I was lucky enough to secure from the Henry Field Seed Co. two ounces of seed of the "annual white sweet clover." In January I shipped the seed to my father in Italy, asking him to pay it the best of his attention and care. Confident that you would be glad to hear something about the results my father has had from this seed, I am going to translate ad literam for you from his letter the following:

"The annual white sweet clover, sown on April 15, is today (July 29) already all in bloom. In spite of a stubborn drouth, of which nobody remembers the like, it has reached the height of one meter and 50 centimeters (5 feet). The bees rush to it all day long from morning to sunset and no one of the farmers has the slightest idea of such plant bearing millions of small white flowers. I'll take the very best care in harvesting the seed."

I hope to be able to secure some more seed next fall to send to my country, so getting interested more persons in this very valuable plant, for which the agricultural world is indebted to Prof. Hughes as well as to you.

289 E. 151st St., New York City,
Aug. 24, 1920. D. Barone.

* * *

THREE CLIPPINGS FROM DIFFERENT NUMBERS OF THE RURAL NEW YORKER.

The annual Sweet clover on our farm grew, by actual measurement, 8½ inches during the seven days ending August 7. This clover is not given special care or fertilizing. It is on land of usual good quality. We have never seen any legume grow as this does, and we feel more and more confident that our Northern farmers are to have in this crop the most useful manurial plant ever introduced. We do not speak of its value as a hay or pasture plant, altho that will be great: but as a crop for adding organic matter and nitrogen to the soil, and still permitting a money crop in the same season, this annual Sweet clover is a wonder.

During the seven days ending August 14 the annual Sweet clover growing on our farm grew a little over 11 in. It then stood 39 in. high, from seed put in the ground June 12. Perhaps you think we are making too much of this plant. We believe it is to prove the greatest manurial crop our Northern gardeners and fruit growers have ever known. Where Crimson clover will thrive this annual Sweet clover may not prove as valuable, but in most sections north of Philadelphia we regard it as a great acquisition, sure to change methods of farming and fertilizing in many sections. Here is a newcomer capable of adding to an acre about as much nitrogen as you can buy in 500 lbs. of nitrate of soda during the working days of late summer. We call anything capable of doing that a friend in need, and we feel like passing his name along to our friends.

During the week ending August 21 our annual Sweet clover reached a height of 45 inches—just 10 weeks after the seed was put in the ground. Its growth is by no means finished. No; we have not gone crazy over this clover. We never had a saner idea of what a new plant may do for us, and we want all our readers to understand something of its possibilities. As a manurial crop to follow early potatoes or other garden crops, we think this clover will prove remarkable. With an acre of this clover growing on good soil we should feel as if some kind-hearted neighbor had decided to come once a week and scatter a ton of manure over the acre. We have good neighbors, but not one has ever volunteered any such service. That kindly act has been reserved for the Hon. A. S. Clover. We nominate him for the congress of nitrates. It is reported that one canning company in the West has paid $5 a pound for 20 bushels of this clover seed. This reminds us to caution readers about buying this seed from irresponsible dealers. You cannot distinguish the seed from that of the old two-year clover.—*Rural New Yorker.*

"NEITHER SHORTER HOURS NOR BIGGER PAY."

"Of all the workers in the known world today, these little toilers are going on as of yore, asking no reduction of working hours nor higher pay, to help increase, rather than diminish, the high cost of living. They work cheerfully and contentedly in an old nail keg, or any old disgraceful box that may be offered them, or even in the hollow log that is found in many forests."

Our bee friends should keep in mind the above which we clip from the *Rural New Yorker.*

Classified Advertisements

Notices will be inserted in these classified columns for 30c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued while they are in good standing.)

W. M. Peacock, W. B. Crane, J. M. Gingerich, Bert Smith, Geo. M. Sowarby, Julius Victor, Jasper Knight, W. J. Forehand & Sons, J. E. Wing, E. B. Tyrrell, J. W. Romberger, Samuel Pitts, W. T. Perdue & Sons, J. H. Haughey, D. T. Gaster, F. R. Davis, Hazel V. Bonkemeyer, V. R. Thagard, I F. Miller, A. H. Newman, Fred Leininger & Son, O. E. Tulip, John Nebel & Son Supply Co., D. A. Davis.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Very choice white-clover extracted honey in 60-lb. cans.
Noah Bordner, Holgate, Ohio.

FOR SALE.—A1 quality white sweet clover honey, 60-lb. cans, 22c f. o. b.
Joe C. Weaver, Cochrane, Ala.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Buckwheat honey in 60-lb. cans. Good quality and clean.
E. L. Lane, Trumansburg, N. Y.

FOR SALE.—Extra nice clover honey in 60-lb. cans at $30.00 per case of two cans.
Seward Van Auken, Delanson, N. Y.

FOR SALE.—Finest Michigan basswood and clover honey at $30.00 per double case of 60-lb. cans. Sample 25c. A. S. Tedman, Weston, Mich.

FOR SALE.—Extra quality clover honey in cans and barrels. Write for special prices.
F. W. Lesser, East Syracuse, R. D. No. 3, N. Y.

FOR SALE.—White honey in 5-lb. pails, 12 pails to case, $16.20 per case, f. o. b. here.
R. Conn, Roaring Branch, Pa.

FOR SALE.—Buckwheat honey in new 60-lb. cans two to the case and 160-lb. kegs.
B. B. Coggshall, Groton, N. Y.

FOR SALE.—Very fine quality basswood-milkweed (mostly milkweed) honey in 60-lb. cans.
P. W. Sowinski, Bellaire, Mich.

FOR SALE.—Extracted clover honey in car lots. Send for sample if interested in car lots.
J. D. Beals, Oto, Iowa.

RASPBERRY HONEY for sale, left on the hive until thoroly ripened by the bees. It is thick, rich, and delicious. In new 60-lb. cans. Price, two cans in one case, $30.00. One can, $15.50. Sample, 25c.
Elmer Hutchinson & Son, Lake City, Mich.

FOR SALE.—We have a very choice lot of white clover honey at 25c per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—New crop extracted clover honey two 60-lb. cans to case, $30.00 per case; in 5-lb. pails, $1.50 per pail; packed 12 pails to case or 30 to 50 pails per barrel. H. G. Quirin, Bellevue, O.

FOR SALE.—Well-ripened clover and basswood honey (light) in 60-lb. cans. Ton lots or less. 25c, cash with order.
D. L. Woodward, Clarksville, N. Y.

FOR SALE.—Clover and buckwheat extracted honey. Well ripened. Put up in new 60-lb. cans and 5 and 10 lb. pails.
H. B. Gable, Romulus, N. Y.

FOR SALE.—Clover, basswood or buckwheat honey, comb and extracted by the case, ton, or carload. Let me supply your wants with this fine N. Y. State honey.
C. B. Howard, Geneva, N. Y.

COMB HONEY.—Finest western white clover. 2 dozen plain sections to case, six cases to a carrier, fancy and heavy No. 1 grades, $49.00 per carrier, f. o. b. New York.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Extracted clover honey in 60-lb. cans, $27.50 per case of two cans. Selected No. 1 comb honey packed eight cases in a carrier, $7.50 per case. Prices f. o. b. here.
J. D. Beals, Oto, Iowa.

FOR SALE.—Finest Michigan raspberry, basswood, and clover No. 2 white comb, $6.50 per case; No. 1, $7.00; fancy, $7.50; extra fancy, $8.00; 24 Danz. sections to case. Extracted, 60-lb. can, 25c per lb. W. A. Latshaw Co., Clarion, Mich.

FOR SALE.—Finest quality white-clover extracted honey, well ripened and of good flavor, put up in new 60-lb. and 12-lb. cans, and 10- and 5-lb. pails. Also some nice comb honey.
R. C. Ortleib, Dolgeville, N. Y.

FOR SALE.—Light Haitien honey, 400-lb. barrels, 19c lb.; 60-lb. cans white sweet-clover honey, 23c lb.; new white sage, 25c lb., f. o. b. New York. 60-lb. cans shipped two in a case.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

EXTRACTED HONEY.—New white sage, 60 lb. cans, 24c a lb.; white Arizona, 60-lb. cans, 20c a lb.; white N. Z. clover, 56-lb. net cans, 23c a lb.; L. A. Haitien, 400-lb. barrels, 18c a lb.; buckwheat honey, 160-lb. kegs, 20c a lb. Cans two to a case f. o. b. New York. Sample sent for 20c.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Clover extracted honey of unsurpassed quality; new cans and cases, prompt shipment. You will be pleased with "Townsend's quality" extracted honey. Not a single pound extracted until long after the flow was over; thus the quality. Would advise intending purchasers to order early, as we have only a half crop. Address with remittance.
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

Quote me your best price on clover honey in 60-lb. cans. E. C. Pike, St. Charles, Ills.

WANTED.—Clover extracted honey in 60-lb. cans.
I. J. Stringham, Glen Cove, N. Y.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—Honey, comb and extracted. State quantity and price, and send sample of extracted.
A. W. Yates, Hartford, Conn.

WANTED.—Bulk comb, section and extracted honey. Write us what you have and your price.
J. E. Harris, Morristown, Tenn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax, and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address, so we can identify it immediately upon arrival, and make prompt remittance.
The A. I. Root Co., Medina, Ohio.

We buy honey and beeswax. Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to case. Extracted honey, quantity, quality, how packed and send samples.
Chas. Israel Bros. Co., 486-490 Canal St., New York City.

FOR SALE

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—40 10-frame hives, supers, wood-and-wire excluders, etc. Minard Rote, Dakota, Ills.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

FOR SALE.—Barron strain S. C. White Leghorn cockerels, 5 months old, 297-egg strain. Write to R. S. Harker, Hidalgo, Ills.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

How many queens have you lost introducing? Try "The Safe Way" push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

ROOT'S BEE SUPPLIES.—For the Central Southwest Beekeeper. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

PORTER BEE ESCAPES save honey, time and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

SAFETY FIRST! Use Dahl's famous push-in-comb queen-introducing cage, satisfaction guaranteed. $1.00 postpaid
H. J. Dahl, 1272 Michigan Ave., Buffalo, N. Y.

FIVE-GALLON SECOND-HAND CANS. — Buy supply now for next season as price advancing. In good condition, two to a case, 50c per case or 100-case lots at 40c per case f. o. b. New York.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—I have a lot of standard 4¼ x 1⅞ comb honey supers complete with sections and full sheets for sale or will trade for shallow extracting frames or supers.
Edw. A. Winkler, Joliet R. D. No. 1, Ills.

FLORIDA BEEKEEPERS.—You can save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—Good second-hand double-deck comb-honey shipping cases for 4¼ x 4¼ x 1⅞ sections, 25c per case, f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—2 H. P. boiler, $25.00; 2½ H. P. engine, $25.00; 6 H. P. boiler, $40.00; 4 H. P. engine, $35.00. Pump jack, new, $6.00. These are worth twice the money.
J. W. Utter, Amity, N. Y.

FOR SALE.—1 wax press, 300 frames with foundation, 50 stands of bees, 8-frame hives and supplies, $18.00 each, or best offer, 50 supers, 1 camera. No disease. Must sell by the 25th.
Hickory Shade Apiary, H. D. Hopkins, Prop., Otterville, Mo.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash, and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—25 Jumbo 10-frame hives, metal tops; 35 10-frame hives, metal tops; 30 empty 10-frame hives, wood tops; 30 empty 8-frame hives, wood tops; 40 bee-escape boards and excluders; 34-lb. Jumbo foundation; 30-lb. light brood foundation. Hives painted white, in good condition, with full sheets of foundation. Requeened this year, Italian bees. Reason for selling, am moving to Florida for other business. Will sell at first reasonable offer. C. D. Shinkle, Williamstown, Ky.

FOR SALE.—Closing out my business. Overland truck, new, perfect condition, $450. Solid tires in rear; 65 comb-honey supers, new, $1.00 each; 32 shipping cases, new, 25c each; 12 wood-and-wire 10-frame excluders, 25c each; 7 metal top ten-frame hives with wired sheets foundation, $5.00 each; one Root two frame automatic extractor, $10.00. All Root standard goods. 34 colonies bees, goldens, at $10 each. Will sell all or part of above. S. H. Burton, Washington, Ind.

WANTS AND EXCHANGE

WANTED.—Novice extractor immediately. State price. Minnie Michel, Golconda, Ills.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Two-frame extractor in good condition, reasonable.
A. L. Soggs, 3604 Bader Ave., Cleveland, Ohio.

BEES WANTED.—300 colonies, 10-frame Langstroth hives preferred. Write stating particulars as to price, condition of bees, etc., to
J. W. Hornick, Dresden, R. D. No. 4, Ont. Can.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

WANTED—Full drawn out combs, standard sized frames, free from disease
N. N. Banning, Hartland, Conn.

WANTED.—Manager for Michigan Honey Producers' Exchange. In answering state qualifications and previous experience.
B. F. Kindig, E. Lansing, Mich.

WANTED.—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, O.

REAL ESTATE

FOR SALE.—On account of failing health will sell my home adjoining city of Denver, together with apiary of 80 colonies.
J. A. Everett, Edgewater, Colo.

FOR SALE.—Southern California ranch of 216 acres of land. 15 acres in bearing peach trees, early and canning varieties; 19 acres under ditch line, good citrus land; 25 acres grain land; balance 157 acres pasture with good spring; 90 colonies of bees in 9 and 10 frame hives, two-story and good Italian stock, average 120 lbs. per colony, spring count 1920. Plenty of forest reserve land joining, making a good bee range. Small house sheds and honey-house. Four miles from town and railroad, one mile from graded school. Price, $10,000. Terms. Address owner.
Chas. F. Schnack, Escondido, Calif.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens, $1.00 each.
W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

When it's GOLDEN it's Phelps. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Italian queens, three-banded and Goldens, untested, $1.25 each; 6, $6.50; 12, $13.00. Now ready. G. H. Merrill, Pickens, S. C.

Queens of Dr. Miller's strain, untested, $1.25 each; $12.50 per dozen; tested, $1.75 each; $18.00 per dozen. Safe arrival and satisfaction guaranteed. Geo. A. Hummer & Sons, Prairie Point, Miss.

Golden queens ready April 15th. One queen, $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—6 colonies hybrids in 10-frame hives, wired combs, free from disease. All good workers. $10.00 per colony. Write
F. E. Ebersole, Box No.708, Port Arthur, Texas.

FOR SALE.—10 full colonies of bees in 10-frame hives (5 in L. hives). Price, $80 until Nov. 1.
Clarence Locknow, Buskirk, R. F. D. 1, N. Y.

FOR SALE.—25 colonies, healthy Italian bees, and all supplies; new 10-frame hives, supers, excluders, extractor, tanks, etc. Just sold my property and will sell the bees cheap. Write
H. A. Mau, R. D. No. 1, Lake Beulah, Wis.

FOR SALE.—100 swarms of bees, 75 of which are in 8-frame hives, mostly new, a good many wired frames, requeened with Miller and Davis queens. 25 in 10-frame hives mostly hybrids.
T. S. Hurley, Garwin, Iowa.

FOR SALE.—50 colonies, also extra hives and separator. Will give separator to the purchaser of the apiary. J. T. Haley, Jr., Grayson, Ky.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Full colonies of bees (with Italian queen) in 10-frame Root Co. hives, $14.00 each; two for $27. J. W. Harrison, White Pigeon, Mich.

BEES BY THE POUND.—Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas. E. B. Ault, Prop.

QUEENS OF QUALITY.—Our Hand-Moore strain of three-banded Italians are beautiful, and good honey-gatherers. Bred strictly for business. Untested, $1.50; half-doz., $8.00. Select, $2.00.
W. A. Latshaw Co., Clarion, Mich.

PURE ITALIAN QUEENS.—Not the cheapest, but the best we can grow; bright yellow, with clean bill of health; sure to please; such as we use in our own yards. Untested, $1.25; $14.00 per dozen.
J. B. Notestein, Bradentown, Fla.

Highest grade three-banded Italian queens. Virgins, 75c each; untested, each, $1.25; 6, $6.50; 12, $12.00; 50, $47.50; nuclei, $3.00 per frame, queens extra. No disease, and satisfaction guaranteed. A. E. Crandall, Berlin, Conn.

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.00 for 10; $1.10 each when 25 or more are ordered. Allan Latham, Norwichtown, Conn.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, $2.00; 6, $8.00; doz., $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Vt.

We have enlarged our queen-yard considerably. We can take care of orders better than ever, large or small. Untested queens, 1.50 each, or $15.00 per dozen. J. A. Jones & Son, Montgomery, R. D. No. 1, box 11a Ala.

We are now booking orders for early spring delivery of two and three frame nuclei, with untested or tested queens. Write for prices and terms. We also manufacture cypress hives and frames.
Sarasota Bee Co., Sarasota, Fla.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, $1.25; 12 queens, $14.00. One pound of bees with queen, postpaid, $6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

TESTED QUEENS.—Three-banded leather colored Italians, descended from the celebrated Moore strain. These queens are now one year or less old, right in their prime. Price, $2.00 each. Safe arrival and satisfaction guaranteed. A few breeding queens, $5.00 each.
Elmer Hutchinson & Son, Lake City, Mich.

FOR SALE.—Pure Italian queens, golden or leather-colored, packages and nuclei; 1 untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100; virgins, 50c each; packages 24 and under, $2.25 per pound; 25 and over $2.00 per pound; nuclei, 1-frame, $4.00; 2-frame, $6.00; 3-frame, $7.50; queens extra. One-story 10-frame colony with queens, $12.00. Golden Star Apiaries, New Almaden, near San Jose, Calif.

DAY-OLD QUEENS at practical prices. Superior improved Italian stock. Mailed in safety introducing cages. Safe arrival guaranteed to any part of the U. S. and Canada. Send for circular. Prices, 1, 75c; 10, $6.00; 100, $60.00.
James McKee, Riverside, Calif.

FOR SALE.—180 colonies bees, also our former home consisting of about four acres, nearly new bungalow house, good sized barn, new garage and workshop, and honey house. This property located one mile from small village and is in the heart of the buckwheat region of Cayuga County.
Fred D. Lamkin, Popular Ridge, N. Y.

The A. I. Root strain of leather-colored Italians that are both resistant and honey-gatherers. These queens and bees need no recommendation for they speak for themselves. Orders taken now for next season. Untested, $1.50; select untested, $2.00; tested, $2.50; select tested, $3.00. Circular free. For larger lots, write
A. J. Pinard, Morgan Hill, Calif.

FOR SALE.—75 colonies Italian bees in practically new 10-frame hives, well painted, combs drawn from full sheets of foundation, wired, free from disease. Investigation solicited. Also 100 10-frame supers of extracting combs, recently drawn from wired foundation.
Anthony Johnson, Benson Station, Omaha, Nebr.

QUEENS.—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, $2.00; six, $9.00; twelve, $16.80. After June 1, one, $1.50; six, $8.00; twelve, $14.00. Select tested, $3.00 each. Write for prices per 100. Descriptive circular free.
Hardin S. Foster, Dept. G, Columbia, Tenn.

ITALIAN QUEENS.—The Old Reliable three-banded Italians, the best all-round bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, $1.50; 6, $8.00; 12, $15.00. Tested, $2.25; 6, $12.00; 12, $22.00. Selected tested, $3.00 each. Descriptive circular and price list free.
John G. Miller, 723 C St., Corpus Christi, Texas.

MISCELLANEOUS

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Genuine White Annual Sweet Clover. Garden-grown on our grounds and guaranteed pure. New crop seed, 1 lb., $5.00; ¼ lb., $1.50; 1 oz., 50c, all postpaid.
Henry Field Seed Co., Shenandoah, Iowa.

HELP WANTED

WANTED.—Another good queen-breeder for season of 1921. W. D. Achord, Fitzpatrick, Ala.

WANTED.—Man to work with bees on shares or wages and assist with farm work.
Irwin Bros., Currant, Nev.

WANTED.—Reliable queen-man for the next season, beginning January, 1921. A permanent position for the right party.
Ray C. Patten, Whittier, R. D. No. 2, Calif.

WANTED.—Industrious man, age 34, two years bee experience, some queen-raising experience, first-class man with auto, wants position with up-to-date beekeeper in western States only, Colorado or California preferred. Am looking for steady job. Open for engagement March 1.
Arthur Outzen, Harmony, Minn.

WANTED. Beekeeper for apiary at Lilly Orchard, married man able to grade and pack fruit preferred. Come and get a job during apple-picking and size up the location. Can give work in orchard when not busy with bees.
H. W. Funk, Normal, Illinois.

SITUATIONS WANTED

WANTED to correspond with parties in the South wanting help with their bees from Dec. 1, 1920, to May 1, 1921.
Address Box Number 627, Aitkin, Minn. 259

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. $1.00 per year. Sample copy 10c. Address

Special Crops, Box G, Skaneateles, New York

The "BEST" LIGHT

Positively the cheapest and strongest light on earth Used in every country on the globe Makes and burns its own gas Casts no shadows. Clean and odorless Absolutely safe Over 200 styles. 100 to 2000 Candle Power Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Sell Your Crop of Honey to

Hoffman & Hauck, Inc.
Woodhaven, N. Y.

No Lot too large or small, and Purchase your

Containers, Prompt Shipment

2½ lb. Pails, case 2 doz. . . $1.90 each
Crates of 100 $ 7.25

5 lb. Pails, case 1 doz . . . . . $1.80 each
Crates of 100 $11.00

10 lb. Pails, case ½ doz . . . . $1.60 each
Crates of 100 $17.50

5-gal. cans used 2 to case . . . 50c case

WHITE FLINT GLASS JARS, SCREW CAPS

Qt Honey 3 lb. size 1 doz. cartons $1.25 each
1 lb. " 2 doz. " 1.70 each
½ lb. " 3 doz. " 2.00 each

Our Food Page.—Continued from Page 608.

honey reveals the fact that even honey may be refined to the extent of removing some of its most valuable constituents. I have no doubt that extracted honey will always be used. Its convenience and long-keeping qualities in that form make it almost a necessity; and even extracted honey, we must remember, contains small quantities of the water-soluble B vitamine. But comb honey, because of its fat-soluble vitamine content, is worthy of being placed in the class with milk, cream, and other dairy products, eggs and the green, leafy vegetables, and I hope in the future it may be profitable for beekeepers to turn more largely to the production of comb honey.

HONEY FINEST MICHIGAN Raspberry, Basswood and Clover comb and extracted honey. Unexcelled for quality.

"SELL MORE HONEY"

Crate 6 cases (24 sec.) Fancy Comb	$45.00
Crate 6 cases (24 sec.) A No. 1 Comb	42.00
Crate 6 cases (24 sec.) Extra Fancy	48 00
Crate 6 cases (24 sec.) No. 2 comb	39.00
Two cans (120 lbs.) Extracted	30.00

Send Today for Free Sample.

W. A. LATSHAW COMPANY, Clarion, Mich.

QUEENS

Golden and three-band Italians. The kind that fill from two to four supers.

Untested, $2 00 each; $11.00 for 6; $45.00 for 25. No discount for 50 or 100 lots. Tested, $3.00 each; $16.00 for 6. Send orders for queens as early as possible.

Full colonies (bees and queen) $12.00 and $15.00 for 8- and 10-frame Root Co. hives.

S. C. R. I. Red eggs for hatching (280 egg trapnested strains) $2.50 per 15. $12.00 per 100.

MISS LULU GOODWIN, Mankato, Box 294, Minn.

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** THE BEST LIGHT CO. 306 E. 5th St., Canton, O.

Raise Guinea PIGS- FOR US!

We need men and women, boys and girls everywhere to raise Guinea Pigs for us. We tell you where to get them, show you how and buy all you raise. Big opportunity for money making. Thousands needed weekly.

Easy to Raise—Big Demand No special knowledge, **Large Profits** experience or equipment needed. They breed the year round—are very prolific—require but little space or attention. Pay better than poultry or squabs—cost less to house, feed, keep, easier raised—less trouble, market guaranteed. **Particulars, contract, and booklet how to raise FREE**

CAVIES DISTRIBUTING COMPANY
3145 Grand Avenue, Kansas City, Mo.
Largest Guinea Pig breeders and distributors in America.

Large, Hardy, Prolific Queens

Three-band Italian only. Pure mating and safe arrival guaranteed.

One, $1.30; 6, $7.50; 12, $13.50; 100, $110.00

Buckeye Bee Co., Lock Box 443 **Massillon, Ohio**

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

INDIANOLA APIARY

Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, $1,00; Tested, $1.50. Nucleus, $2 per frame, queen extra.

J.W.SHERMAN,VALDOSTA,GA.

ATTENTION

Pacific Northwest Beekeepers

We handle a full line of supplies for beekeepers, including Italian Queens. Write us your requirements and for our catalog B. It's free.

Spokane Seed Company, Spokane, Wash.
904 First Avenue

Mott's Northern-bred Italian Queens

Untested, $1.00 each; $12.00 per dozen. Select untested, $1.25 each; $15.00 per dozen,

Select guaranteed, pure mated, $1.50 each. Select tested, $2.50 each.

Plans "How to Introduce Queens, and Increase," 25c

E. E. Mott, - - Glenwood, Mich.

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 1083

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

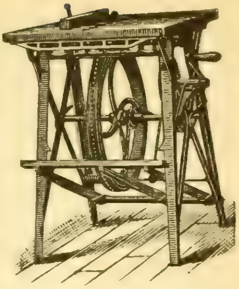
THE EDWARDS MFG. CO.,
1023-1083 Pike St., Cincinnati, O.

FREE Samples & Roofing Book

PATENTS Practice in Patent Office and Court
Patent Counsel of The A. I. Root Co
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service
BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway,
If you have not received 1920 catalog send name at once.



BARNES'
Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS

QUEENS OF
MOORE'S STRAIN
OF ITALIANS

Produce Workers
That fill the super quick
With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens $1.50; 6, $8.00; 12, $15.00
Select untested..$2.00; 6, $10.00; 12, $19.00

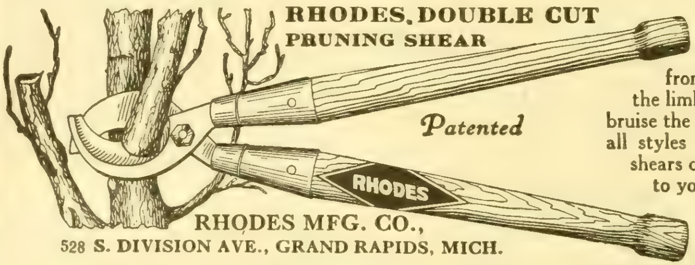
Safe arrival and satisfaction guaranteed.
Circular free.

J. P. MOORE, Queen Breeder
ROUTE 1 MORGAN, KY.

Southern Headquarters
Three-Banded
ITALIAN QUEENS

BY RETURN MAIL.
Untested, $1.00 each; 12, $11.50. Select untested, $1.25 each; 12, $13.25. Tested, $1.75 each.

W. D. ACHORD,
Fitzpatrick, - - Alabama.



RHODES DOUBLE CUT PRUNING SHEAR

Patented

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.

Sections! Sections!! Sections!!!

We have in stock an oversupply of the following sizes and are offering them at a big reduction, WHILE THEY LAST. These sections are of a very good grade, and mostly standard sizes. For lack of warehouse room we are sacrifcing them at the following low prices:

No. 2.—4¼ x 4¼ x 1¾, Two Beeway..................per M	$10.00
No 2—4¼ x 4¼ x 1½, Plain or No Beeway..........per M	9.00
No. 2—3⅝ x 5 x 1½, Plain or No Beeway..........per M	9.00
No 2—4 x 5 x 1 7/16, Plain or No Beeway..........per M	9.00
Mill Run—4 x 5 x 1 7/16, Plain or No Beeway..........per M	9.70

The above prices are net, cash with order. Sold in lots of not less than 1000.

We are well prepared to fill all orders for Bee Supplies promptly. Send us your inquiries and we will be pleased to quote you our prices. Send us your name and address and receive our next season's catalog and price list when same is published.

AUGUST LOTZ COMPANY. -:- BOYD, WISCONSIN

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

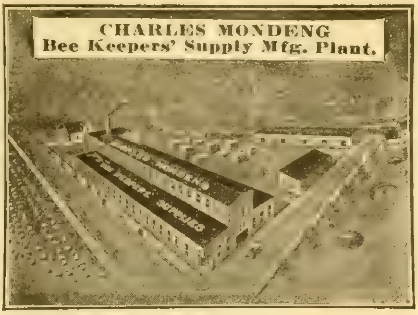
Carl F. Buck

The Comb-foundation Specialist

Augusta, Kansas

Established 1899

BEE SUPPLIES



The largest and oldest Bee Supply manufacturer in Minnesota can offer you **bee ware** that will keep that "satisfied smile" on your face. Excellent quotations given on frames, spacing or unspacing. Send for my 1920 Catalog and Price List. **Think** it over and in thinking **be wise** and save money by placing your orders **before** the rush is on. *Will Take Beeswax in Trade at Highest Market Prices.*

CHARLES MONDENG

146 Newton Ave., N. Minneapolis, Minn.

Protect Yourself

against Price advances, by ordering your BEE SUPPLIES for the coming season, as soon as possible. Market conditions already have forced a 20% advance on certain lines—and in the near future you will find practically all Supply Prices going up 20% to 50%.

On Hives, Supers, Frames, Sections, Section-Holders, Separators, and Foundation we are still quoting the old figures; but there's no telling how soon these prices, too, will be forced up. DON'T WAIT for this to happen—get these needed Supplies at our present low prices by ordering early.

We are prepared to fill hurry orders for white pine Hives and Frames basswood Sections, Section-Holders, and Separators—clear white Flint Glass Honey Bottles with large screw tops.

Why not take advantage of my present Prices before it's too late—and thereby save Dollars on your Bee Supplies for next season? Better write for those Prices right now—TODAY.

P. J. DOLL BEE SUPPLY CO.

NICOLLET ISLAND MINNEAPOLIS, MINN.

ANNOUNCEMENT

We can ship at once from stock the containers you need to market your crops. We are particularly well supplied with the following:

Standard 5-gal. square cans, in heavy, first-class shipping cases, of either one or two cans each. Get our quotations on bulk shipments.

Glass jars in assortments of 15, 16, and 20 ounce sizes, packed in cartons, 2 dozen each. These jars are a popular container, and you cannot order too soon, and in sufficient quantities to market your crop.

Square cans, with screw cap, packed in heavy cartons, particularly well adapted to parcel post shipments. We know of no neater, safer, cheaper way to send honey short distances. These cartons, properly marked, are great advertisers, too. We carry in stock the gallon, the half and fourth gallon sizes.

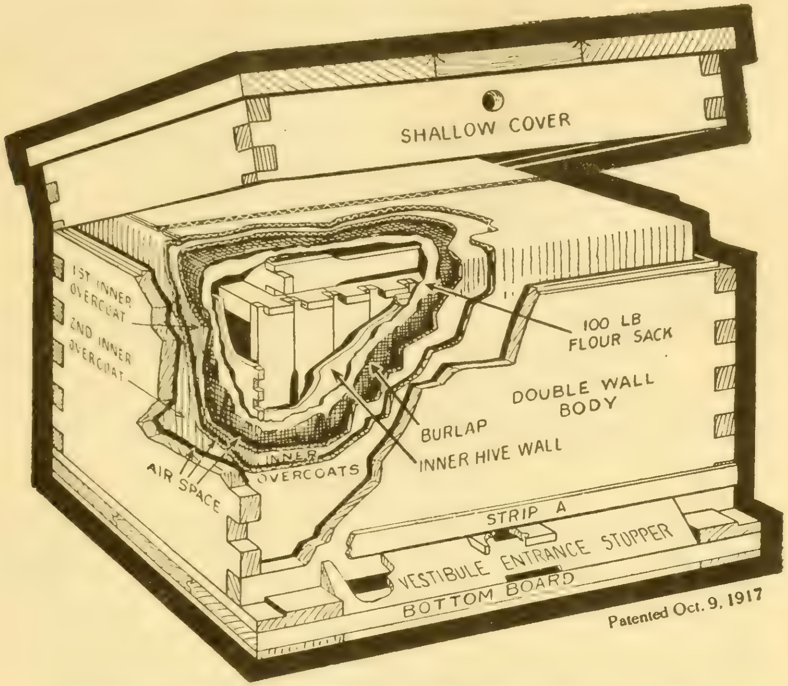
We will be glad to estimate and quote on what containers you are going to need to market your crop, if you will let us know how much honey you expect to market. We believe that we can interest you.

Remember, we can ship at once. Located as we are in the very focal center of Western shipping activities, we can save you valuable time, and perhaps excessive freight charges.

* * *

THE A. I. ROOT COMPANY of Iowa
COUNCIL BLUFFS, IOWA

Winter Problem Solved by the Hive with an Inner Overcoat . .


SHALLOW COVER
1ST INNER OVERCOAT
2ND INNER OVERCOAT
100 LB FLOUR SACK
DOUBLE WALL BODY
BURLAP
INNER HIVE WALL
AIR SPACE
INNER OVERCOATS
STRIP A
VESTIBULE ENTRANCE STOPPER
BOTTOM BOARD
Patented Oct. 9, 1917

Furnished with Jumbo Depth or Standard Hoffman Frames.

The above illustration shows the substantial, compact, neat and efficient equipment that winters normal colonies of bees perfectly. It consists of a frame of honey laid over the top of the others: if you have no extras, one can be removed from the brood-nest for the purpose. A 100-pound flour sack is spread over the top and a piece of burlap 34 x 36 inches is laid over this. The First Inner Overcoat is telescoped down over the brood-nest in between the inner and outer hive walls, the flour sack and burlap being carried down with it. This has the effect of wrapping the brood-nest in a blanket. The Second Inner Overcoat is then telescoped down over the first. A quilt of old carpet or similar material can be cut the right size and laid in over the burlap, inside the inner overcoats. The Inner Overcoats are removed in the Spring and stored away in the flat. This insulates the colony with a ⅜ inner hive wall, with a flour sack and burlap wrapped about it, two thicknesses of corrugated paper board around the sides and ends and four thicknesses over the top, together with the intervening air spaces and the ⅞ outer hive wall. The work is done quickly and easily with no litter of packing materials.

Order a sample shipment of these hives to try out the coming WINTER and be convinced of their efficiency and durability. Catalog and special circulars sent on request.

A. G. Woodman Co., Grand Rapids Mich., U. S. A.

DO YOU BELIEVE

IN PREPAREDNESS?

Of course you do. Then begin right now to plan for next season. Make out your list of supplies, send in your order, and receive our 7% early order discount for this month.

This season for 1920 has been a fine one, hasn't it? Better plan for an even bigger crop for next year.

Secure your supplies and the bees will do the rest.

Yes, winter is on its way again, but "How time flies," and before we hardly realize you will be in need of supplies again.

What a comfortable feeling to stretch out before the fire and murmur, "Well, supplies are all in for next season; when the bees are ready I am." TRY IT.

Write for our catalog.

F. A. Salisbury

1631 West Genesee Street

Syracuse, N. Y.

QUEENS *QUEENS*

PACKAGE BEES

ORDERS are coming in daily for 1921 SHIPPING

My FREE circular gives prices, etc. in detail. Safe delivery GUARANTEED. We ship thousands of pounds all over the U. S. A. and Canada.

Our Fall flow is very favorable for Queen-rearing up to about Christmas. So we can furnish you queens the balance of this year at the following prices:

	1	6	12	50	100
Untested Queens	$1.50	$ 7.50	$13.50	$ 48.00	$ 95.00
Select Untested .	1.65	8.25	14.85	52.80	104.50
Tested Queen ...	2.50	13.50	27.00	110.00	
Select Tested....	3.00	16.30			

NUECES COUNTY APIARIES, CALALLEN, TEXAS

E. B. AULT, Prop.

YOUR MONEY AND OURS

To Our Beekeeper Friends:

In last month's Gleanings in Bee Culture we said that we were offering you $100,000 more of our 7% second preferred stock, having every safety for the investor. It is issued solely to meet the demands of growth in our business. You can buy this stock at par and accrued dividend. If you do buy it, that is your money in our business. In this business of ours we have been investing every dollar of our own for many years. So your money and ours, if you purchase this stock, is in together. We wouldn't ask anybody to invest in anything that we would not invest in ourselves.

Write for fullest information. We shall be pleased to answer any questions about our business that an intending purchaser of stock may ask.

The A. I. Root Company

A. I. Root, Pres. Medina, Ohio. J. T. Calvert, Secy.

"falcon" STANDS FOR QUALITY

CERTAINLY prices are high today, but don't make the mistake of buying Low Price goods. Don't compromise with *quality.*

"falcon" bees and supplies are quality products, backed by 40 years of satisfactory service. Experienced bee-men in this country and abroad recognize them, buy them, are successful with them. You'll get the same good results.

Write for Our Red Catalog

W. T. FALCONER MANUFACTURING COMPANY.

Falconer (near Jamestown), N. Y., U. S. A.

"Where the best beehives come from"

QUEENS, NUCLEI, BEES BY THE POUND, AND FULL COLONIES

Hives, Supers, Frames. etc., at half price, any thing in the bee line

Prompt Service *Highest Quality* *Satisfaction*

Fellow Beekeepers: If you are in need of pound packages of bees or bee-supplies, let us figure with you; it takes only a two-cent stamp to get our quotations on your wants. If interested in package bees cheap, we can furnish you hybrid bees with pure Italian queens at a very low price; they will build up as quick as pure Italians, and the price is very much lower. We will have several thousand pounds to offer next season and can guarantee to make shipment on time as early as you want them: for example, if you expect to buy one pound of pure Italian bees with queen for $4.50, hadn't you rather buy one pound of hybrid bees with a pure Italian queen for $3.50 and save $1.00 per pound? In six or seven weeks you would have a pure Italian colony at a much lower price. We will be in position next season to rear over three thousand queens per month that are as good as money can buy; our strain is proved and is of highest quality; we guarantee to please you. Prompt service and fair dealings are our reputation; feel assured that we are behind any thing we sell. If you are in need of any hives, frames, supers, packages, etc., send us a list and let us quote you our prices. Our goods will please; they are guaranteed to fit and come up to standard, or your money refunded. Our supplies are the fruit of our long experience. Let us have your orders in advance.

Prices of Our Three-banded Italian Queens for 1921:

	1	6	12
Untested	$1.50	$ 8.00	$15.00
Select Untested	1.75	9.50	17.00
Tested	3.00	14.75	25.00
Select Tested	4.00	23.00	42.00

Write for Prices on 100 or more.

Packages Hybrid Bees with Pure Italian Queen:

1-pound package with untested Italian queen	$3.50
2 pound package with untested Italian queen	$5.25

Italians Guaranteed to Equal Any:

1-pound package with untested queen	$4.50
2 pound package with untested queen	$7.00

Nuclei, Pure Italian:

1 Frame with untested queen	$5.00
2-Frame with untested queen	$8.00

Nuclei are on good combs full of brood with plenty of bees.

We guarantee every thing we sell; safe arrival and satisfaction; you take no risk; customer is the judge. All queens guaranteed to be purely mated. We are now booking orders, with one-fourth down for spring delivery. Place your order now.

The Farmer Apiaries - - Ramer, Alabama

FRICTION TOP PAILS

All Ready for delivery at Newark, N. Y.

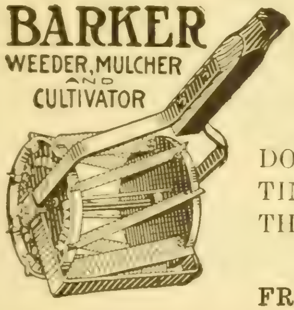
2½-lb. cans, F. O. B.	- -	$6.50 per 100
3 " " "	- - -	7.00 " "
5 " " "	- -	10.70 " "
10 " " "	- - -	16.00 " "

We also have a complete line of Extractors, Bee Supplies, Foundation, Bee Boxes, etc.

Mail us your list of requirements and we can quote you prices that will please you.

THE DEROY TAYLOR COMPANY

NEWARK, WAYNE COUNTY, NEW YORK



Weeds and Mulches

In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER MANUFACTURING CO.
Dept. 10 David City, Nebraska

BARKER
MFG. CO.
Dept. 10
DAVID CITY, NEB

Gentlemen. — Send me postpaid your free book and Factory-to-User Offer.

Name ________________

State ______ Town ______ R. R. No. ______ Box ______

DONT SEND A PENNY

The shoes offered here are such wonderful values that we gladly send them, **no money down.** You will find them so well made and so stylish and such big money-saving bargains that you will surely keep them. So don't hesitate—just fill out and mail the coupon and we will send you a pair of your size. No need for you to pay higher prices when you can buy direct from us—and no need sending money in advance before receiving the shoes. Why pay out $6, $8 or more for shoes not nearly so good? Act now. Mail the coupon today while this special offer holds good. Pay only when shoes arrive. And your money back if you want it.

Great Work Shoe Offer

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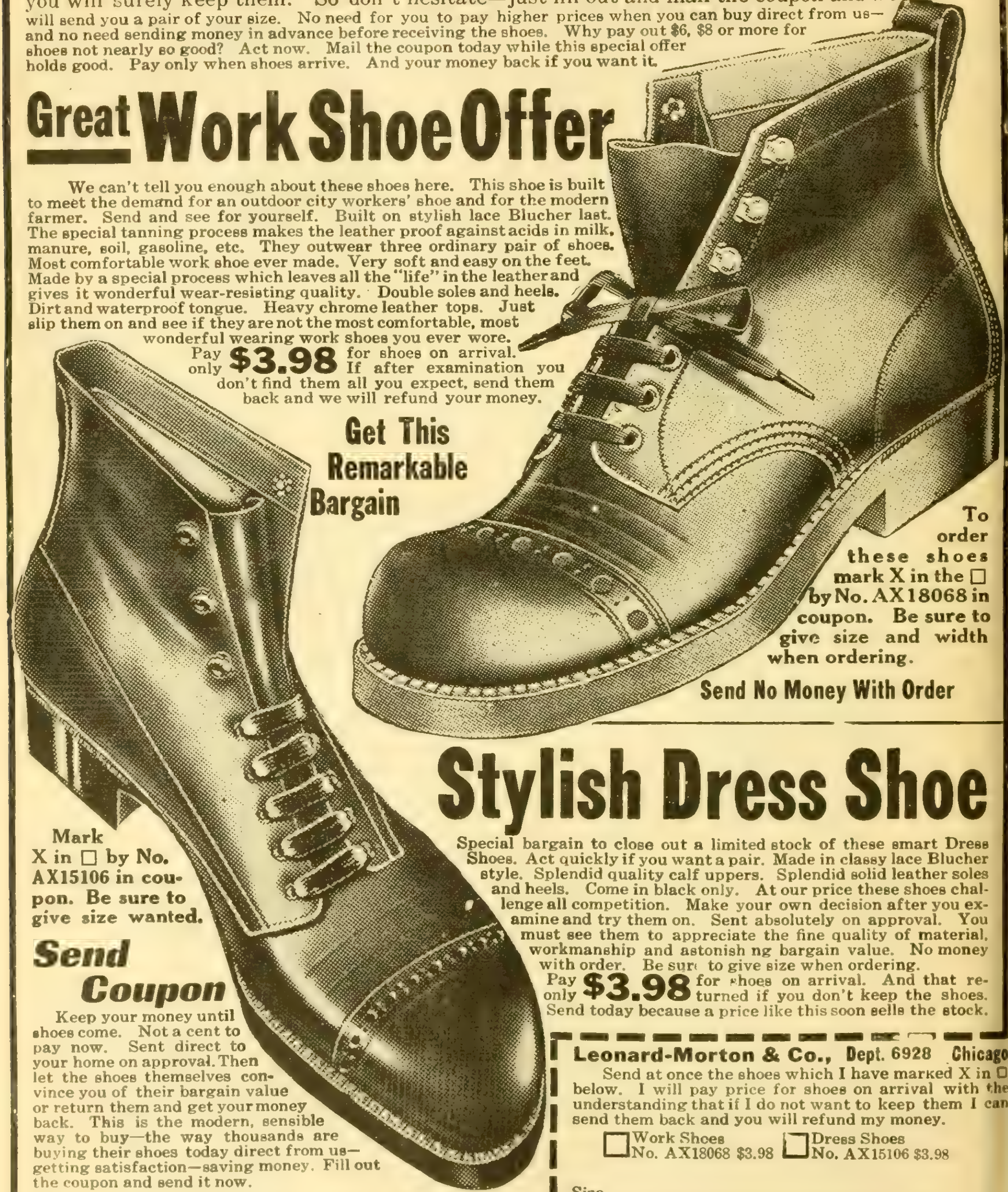

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Medina, Ohio

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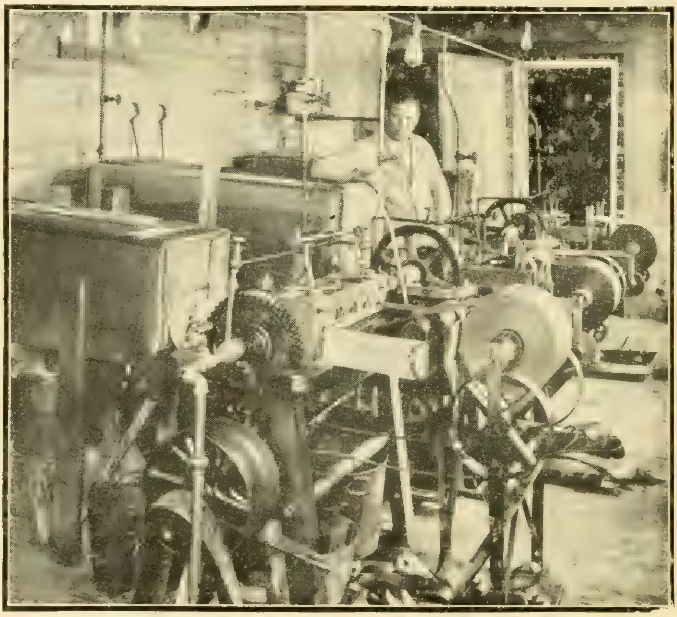

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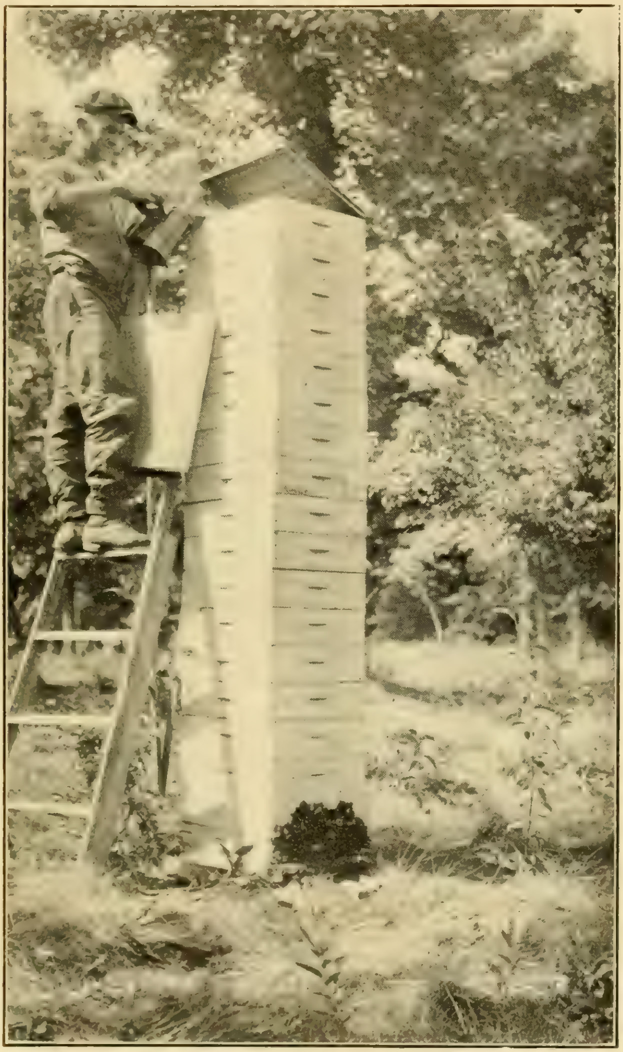

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VOL. XLVIII November, 1920 NUMBER 11

Better get your list of requirements for next year ready and send it in at once. Prices will be quoted by return mail.

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equipment is being installed, so the coming season's output of comb foundation will be made by this greatly improved process.

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HONEY *HONEY*

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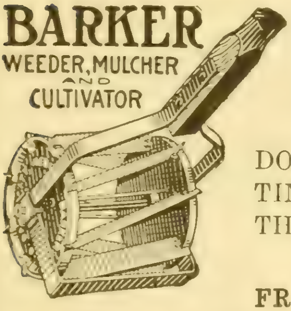

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HONEY MARKETS

The extracted honey market has not improved during the last month. It is generally dull and movement slow. Comb honey, of which there is very little, is in great demand and the price high. The quotations made by the Bureau of Markets and by producers as printed below best reflect present market conditions.

U. S. Government Market Reports.

SHIPPING POINT INFORMATION, OCT. 14.

LOS ANGELES, CALIF.—Light wire inquiry, demand and movement slow, market unsettled, little change in prices. Carloads f. o. b. usual terms, per lb., white orange blossom and white sage 18-20c, light amber sage 15-17c, light amber alfalfa 14-16c. Beeswax, 42c. Slump in sugar market slowing movement.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

BOSTON.—Approximately 75 cases from New York, 75 cases from Vermont arrived since last report. Supplies light, demand and movement limited, market weak, few sales. Sales to jobbers, extracted, per gallon, Porto Rican, amber $1.30. Comb: New York, 24-section cases white clover, No. 1, heavy, $8.75. Vermont, 20-section cases white clover, No. 1, heavy, $8.00. Beeswax: Liberal supplies of foreign stock, market weak. Per lb., domestic, light, 38-43. Imported, Porto Rican, light yellow 30-33c, Porto Rican and African dark 28-25c.

CHICAGO.—No carlot arrivals since last report. Supplies moderate, demand and movement moderate, market dull. Sales to jobbers, extracted, per lb., Colorados, Utahs, and Wisconsins, white alfalfa and white clover 18-19c, light amber alfalfa and clover 17-18c. Minnesotas and Ohios buckwheat, all grades 16-17c. Comb: Ohios and Colorados, alfalfa, 24-section cases, No. 1, $7.00-7.50. Beeswax: Receipts moderate, demand and movement moderate, market steady. Oklahoma, Texas, and New Mexico, refined 38-40c, unrefined 33-35c.

CINCINNATI.—1 car Idaho, 1 car New Mexico, 1 car California arrived since last report. Supplies heavy, practically no demand or movement, market dull, no sales reported. Beeswax: Supplies light, demand and movement moderate, market steady. Sales to jobbers, per lb., average yellow 44-46c.

CLEVELAND.—No arrivals since Oct. 1. Supplies moderate, demand and movement very slow. Sales to jobbers, extracted, per lb., Colorados and Utahs, light amber alfalfa, 60-lb. tins 17-18c, white clover 18-19c. Beeswax: Supplies light, too few sales to establish market.

MINNEAPOLIS.—Supplies moderate, demand and movement slow, market dull. Sales direct to retailers, extracted, per lb., western, light amber alfalfa, 60-lb. cans 20c per lb. Comb: Colorado, No. 1, white alfalfa, 24-section cases $8.00.

ST. PAUL.—Supplies very light, demand and movement slow, market dull. Sales direct to retailers, extracted, Minnesotas, white clover, 10-lb. cans 22c. Comb: Minnesotas, No. 1, white clover, 24-section cases $7.25. Colorados, No. 1, white alfalfa $8.00.

NEW YORK.—1 car New York arrived since last report. Supplies liberal, practically no demand or movement, market very weak and unsettled. Sales to jobbers and large wholesalers, extracted, domestic, per lb., Californias, light amber alfalfa 12-15c, light amber sage 14-17c, white orange blossom and white sage 16-18c. Imported, per gallon, West Indias and South American refined $1.00-$1.15, few $1.25. Beeswax: No arrivals reported since Oct. 1. Supplies moderate, demand and movement very slow, market unsettled. Sales to jobbers and large wholesalers, imported, South American and West Indian crude, light 26-32c, mostly 28-30c; dark, wide range in prices, best 26-28c, poorer low as 19c.

PHILADELPHIA.—Approximately 24,000 lbs. from New York and 17,600 lbs. from Maryland arrived since last report. Demand and movement slow, market dull. Sales to jobbers, extracted, domestic, per lb., Florida, light amber 20c, fancy 21c. New Yorks white clover 17c, southern white orange blossom 16c. Imported, per gallon, Porto Rican, amber $1.35-1.40, light amber, fine quality $1.43-1.48.

KANSAS CITY.—1 car Nevada arrived since last report. Supplies moderate, demand and movement moderate, market dull. Sales to jobbers, extracted, per lb., Kansas white clover and light amber clover 17-18c. Comb: New stock, Nevada, 24-section cases, fancy light alfalfa $7.50-7.75.

ST. LOUIS.—Supplies liberal, demand and movement good, market steady. Sales to jobbers, per lb., extracted, Arkansas and Mississippis, light amber clover, peach and various varieties, mixed in barrels 16c, in 5-gallon cans, best 18c. Combs: Few sales. Colorados, No. 1, light amber clover, 24-section cases $7.00. Beeswax: Supplies light, demand and movement slow, market steady. Sales to jobbers, per lb., Mississippis, Illinois, Missouris, and Arkansas, prime yellow 31c.

GEORGE LIVINGTON,
Chief of Bureau of Markets.

Special Foreign Quotations.

CUBA.—Honey is quoted at $1.20 a gallon, and beeswax at 34c a pound.—A. Marzol.

Opinions of Producers.

Early in October we sent to actual honey-producers, scattered over the country, the following questions:

1. In your locality what part of the honey crop is already out of the hands of the producer? Is the honey crop moving readily?
2. At what wholesale price is honey selling in your State? Extracted honey? Comb honey?
3. At what retail price is honey selling in your State? Extracted honey? Comb honey?
4. How is the demand for honey at present in both wholesale and retail way?
5. For what prices are producers holding?

Answers, as condensed by the editor, are as follows:

BRITISH COLUMBIA.—At wholesale, extracted honey is selling at 30c, comb 42c per section. At retail, extracted 50c in pound jars, $1.75 in 4-pound cans; comb 50c per section. Honey is in good demand; but the supply is limited, owing to a short crop caused by dry weather conditions.—W. J. Sheppard.

CALIFORNIA.—At wholesale, extracted honey is selling at 17-20c, comb at $7 per case. At retail, extracted 25-30c, comb 30-45c per section. Demand slow.—L. L. Andrews.

CALIFORNIA.—About nine-tenths of crop is out of hands of producer. Crop is not moving readily. Extracted honey is retailing at 20-35c. I have never seen such a poor demand, practically no honey being sold. Conditions will not improve till after presidential election according to general opinion. Prices are prohibitive. This State is supposed to produce about 1200 carloads of honey following a wet winter, but this season has not produced a quarter of that amount, tho it seems an average big crop to those that have not been in the business very long.—M. H. Mendleson.

FLORIDA.—Ninety per cent of crop is out of hands of producer. The crop is moving readily, and the market will soon be out of honey. Market for comb honey is bare. Extracted is selling at wholesale for 65c to $1.00 a quart, at retail for 75c to $1.50. The demand is good and picking up for winter and spring. No offerings, as the 10 per cent held will be fed back to the bees for winter.—C. H. Clute.

FLORIDA.—This State did not have much honey to sell early in the season, but the cabbage palmetto trees have given a good crop, which is not yet extracted. Extracted honey at wholesale is about 16c, retailing at $1.20. The retail demand is good.—Ward Lamkin.

IDAHO.—Seventy-five per cent of comb and five per cent of extracted are out of hands of the producer. Comb is moving rapidly, extracted slowly. At wholesale, extracted is selling at 18-20c, fancy comb $6.75-7.00 carlots. At retail, extracted 50c pint jar; 80c upward qt. Comb honey 30c upward. Demand poor but improving as weather gets cooler. Producers are holding extracted for 18c in carlots.

Hear that two cars sold at this figure. E. F. Atwater

ILLINOIS.—At wholesale, extracted honey is selling at 20c, comb at 30c. At retail, extracted 30-40c, comb 35-45c. There is better demand as fruit clears from the market. Producers are holding for 20c extracted, comb 30c. Illinois has a very short crop of honey.—A. L. Kildow.

MARYLAND.—At wholesale, extracted honey is selling at 20-25c, comb at 26-30c. Extracted is retailing at 35c, and comb at 35-50c. Demand is not so good on account of drop in sugar and general downward trend. Producers are selling as fast as trade demands.—S. J. Crocker.

INDIANA.—Movement of honey crop slower than usual at this time of year, due to unusually large amounts of fruit and low price of sugar. All honey sold direct to consumers or to retailers. Retail price of extracted 30-35c in pails; comb honey, $8.40 per case, 45c per section. Demand seems to be increasing. Producers are holding for 25c in 60-pound cans.—E. S. Miller.

IOWA.—Three-fourths of crop out of producer's hands. Honey crop is moving freely. At wholesale, extracted is selling at 18-20c, comb at $7-7.50 per case. At retail, extracted 25-30c, comb 35-40c. Demand is fair, tho wholesalers are not taking hold very freely. About all the producers are closed out, some holding for 20-22c for extracted and perhaps $7-8 for comb.—Frank Coverdale.

MASSACHUSETTS.—About 15 per cent of crop sold. Going very slowly since price of sugar dropped. No sales reported at wholesale. At retail, extracted is selling at 40-60c. Very little comb in market. Demand is very light.—O. M. Smith.

MICHIGAN.—Possibly one-half of the crop is out of hands of producer, but many of the large producers have sold very little. The crop is moving well where a local trade has been cultivated. In a wholesale way, the crop is moving slowly. Extracted honey is selling at wholesale for 20-27c and comb at 35-40c. At retail, extracted is selling at an average of 35c a pound, and comb at 45c a section. The demand at retail is good, but at wholesale poor. Producers are holding for same prices as last year's sales.—B. F. Kindig.

MINNESOTA.—Over half of crop is out of producer's hands. At retail, extracted honey is selling at 25-35c; comb, at 45-55c per section. There is nothing doing at wholesale, but at retail the demand is growing fast and at a good price. Producers are holding extracted for 20-25c in large quantities.—Chas. D. Blaker.

MISSOURI.—Honey all sold. At wholesale, extracted sells at $3.50 a gallon; comb No. 1 $5.50, fancy $7.50-8. At retail, extracted 85-100c a quart; comb, 40-50c a section. The demand has not been very good. There were 25 beekeepers at the meeting last night, and none had any honey left worth while to talk about.—J. W. Romberger.

NEBRASKA.—A very small portion of the crop is out of the hands of the producer. It is not moving rapidly; producers are waiting for higher prices. At wholesale, extracted honey is selling at 20-25c, comb at $7.50-8.00 per case. At retail, extracted 30-35c, comb $9-10 per case. Demand slow.—F. J. Harris.

NEW JERSEY.—At wholesale, extracted honey is selling at 20c and comb at 30c. Extracted is retailing at 50c a pound jar, $1.25 quart; comb at 50c.—E. G. Carr.

NEW YORK.—At wholesale, small lots of extracted honey are selling at 17-20c, jobbing lots 17-18c; comb $7-8 per case. At retail, extracted is selling at any price the beekeeper's conscience will allow from 20-35c; comb,. 40-50c. Market is improving for extracted at wholesale, but not so brisk for comb. Nine-tenths of honey is sold. Most beemen here realized the futility of holding for war time prices.—F. W. Lesser

NEW YORK.—At wholesale, white extracted honey is selling at 20-23c, comb $7.50-8.50 per case of 24. At retail, extracted 30-50c depending on locality, comb 40-50c. The demand at wholesale is very slow; retail from producer to consumer good.—Geo. H. Rea

NEW YORK.—Three-fourths of white honey crop is out of producer's hands, and many beekeepers are buying outside honey to supply their trade. Retail movement is strong. There is a good crop of fall honey, most of which is still in producer's hands. At wholesale, white extracted is selling at 20-25c; dark 15-20c. Comb, white No. 1 and fancy $7.20-8.50 a case. At retail, extracted 25-40c; comb, white 40-60c; dark 35-40c a section. The retail demand is extra good; wholesale slow but improving. Producers are holding for 20-25c wholesale for white extracted; comb is practically all sold.—Adams & Myers.

OHIO.—Seventy-five per cent of honey crop is already out of hands of producer. At wholesale, extracted honey is selling at 15c, comb at 30c. Extracted is retailing at 20c, and comb at 35c. No demand at present. Producers have been holding for 20c but with no buyers, so sold mostly for 15c. Fred Leininger.

OKLAHOMA.—Fifty per cent of crop out of hands of producer. The crop is moving readily. At wholesale, extracted is selling 27-30c and retailing at 35-45c; comb is retailing at 40-50c. The demand for home product is fairly good.—Chas. F. Stiles.

ONTARIO.—About three-fourths of crop out of producer's hands. The crop is moving normally. At wholesale, light extracted honey is selling at 27-32c, comb at $3.75-4.75 per dozen. At retail, light extracted 32-40c, comb 45-60c. Demand at wholesale somewhat slow, owing to uncertainty in the sugar market and the possibilities of falling prices. Producers are holding for above prices, which were recommended by the Ontario Beekeepers' Ass'n, and honey is selling at these prices.—F. Eric Millen.

PENNSYLVANIA.—Clover honey all gone. Buckwheat just harvested, but moving well. At wholesale, extracted is selling at 22½c in small lots, comb 25c. At retail, extracted 25-28c, comb 30-35c. Demand good. Producers are holding for clover honey 22½c, buckwheat 18c.—Harry Beaver.

TEXAS.—Practically all the honey is out of the hands of the producer. At wholesale, extracted honey is selling at 18c, comb at 22c. At retail, extracted 20c, comb 25c. Demand is good both wholesale and retail. No producers are holding.—J. N. Mayes.

TEXAS.—The honey crop is all out of producer's hands. At wholesale, extracted is selling at 14-18c, comb at 18-20c. At retail, extracted 25c, comb 30c. Little demand at present.—H. B. Parks.

EAST TEXAS.—At wholesale extracted honey is selling at 16-20c and retailing at 20-30c. Demand steady. Producers are holding for 20-30c.—T. A. Bowden.

UTAH.—Perhaps three-fourths of crop is out of hands of producer. At wholesale extracted honey is selling at 13-16c, comb at 20-25c. At retail, extracted varies from 18-30c according to package; comb, 22-30c. But little moving in a wholesale way, good local demand by consumers at somewhat reduced prices. As sugar prices tumble, many producers are willing to concede almost anything in order to sell.—M. A. Gill.

WASHINGTON.—Very little left in producer's hands. At wholesale, extracted honey is selling at 20c. A five-pound pail retails at $1.35. Very little stirring at wholesale; the most of the honey sold has been at retail. Producers are holding mostly for 20c.—Geo. W. B. Saxton.

WISCONSIN.—At wholesale, extracted honey is selling at 20-25c, comb 30-40c. At retail, extracted 25-35c, comb 35-50c. Producers are holding for 20-30c.—H. F. Wilson.

Special Notices by A. I. Root

"HEAVEN AND OUR SAINTED LOVED ONES."

The above is the title of a little pamphlet of 24 pages sent out by the Rev. E. W. Pfaffenberger, editor of the Western Christian Union, Boonville, Mo. It may be had for 10 cents, or 20 copies for $1.00, by addressing as above.

As a rule I do not favor any attempt to tell us what heaven is like or what will happen after death. A careful study of the Bible, it seems to me, indicates that God the Father has not seen fit to tell us very much about it. The book mentioned has been read by many with great pleasure, and has been the means of bringing comfort to many a bereaved soul when loved ones were taken away. The numerous quotations from scripture bearing on the matter, gathered together, are valuable.

ITALIAN BEES AND QUEENS

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Untested, $1.25; $12.00 per dozen
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A full line carried at all times. Let us quote you on your requirements. Send us estimate of your 1921 needs, we can save you money. Liberal early order discounts. Special attention to Association orders.

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Well made of the best, soft, light cypress which defies decay. Bottoms, covers, hive bodies, hive stands, supers, frames, and foundation. Special discounts on large orders for bottoms, covers, hive bodies and foundation.

Should you desire your outfit cut according to your specifications, write us. Parties desiring large quantities of goods should send for sample of items wanted which will be furnished at moderate price.

Everything we sell guaranteed to give satisfaction.

⁂

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FRICTION-TOP PAILS

	50	100	200
5-Pound Pails	$5.25	$10.00	$19.00
10-Pound Pails	8.00	15.50	

10-Pound Pails in boxes of six, per box, $1.40

5-Pound Pails in boxes of twelve, per box, $1.75

F. O. B. cars Lansing. No early order discounts allowed at above prices. Can make immediate shipment till present stock is exhausted.

Special prices on application on 12-pound and 16-pound honey cases.

Six per cent early order discount for November cash orders except as noted on friction-top pails listed above.

⁂

M. H. Hunt & Son
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From the first year of sale of DADANT'S FOUNDATION the Dadant firm had at least three hundred colonies of bees.

The tests for satisfactory foundation were made with their own bees, their aim being to manufacture and sell only such goods as would be satisfactory to their own bees, in their own apiary.

Every square inch equal to sample in every respect was the aim, and it was done at all times as thousands can testify who have used these goods.

Not satisfied with the mills they were using, they tried different workmen until they got a mill that would make a foundation without "fishbone," as the beekeeper called it; and also got mills that would make foundation of different weights from five square feet to the pound for brood to thirteen square feet for sections.

A Dadant Apiary

Now the Dadant apiaries have increased to nearly a thousand colonies in ten apiaries. The different locations give a chance for tests in heavy flows, in light flows, in a dearth, for fall crop, for spring. All, so that the proper tests can be made, and only the most satisfactory foundation sent out to the many customers.

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Every inch, every pound, every ton equal to any sample we have ever sent out. Specify it to your dealer. If he hasn't it write us.

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CATALOG AND PRICES ON BEE SUPPLIES, BEESWAX, WAX WORKING INTO COMB FOUNDATION, AND COMB RENDERING FOR THE ASKING

GLEANINGS IN BEE CULTURE

NOVEMBER, 1920

Dr. Miller on Winter Stores.

WHILE WE ARE paying our tributes to Dr. Miller, there is one thing more the editor feels he should say; and that is, that he was clear ahead of his time when he came out with a strong pronouncement in favor of natural stores instead of sugar syrup. It came about in this way:

Some 10 or 12 years ago the editor casually remarked thru these columns that it was generally believed by good beekeepers that good sugar stores well sealed are better than sealed natural stores for winter food. Immediately Dr. Miller came back in his department, Stray Straws, objecting to the statement, and adding, “How long has it been believed that sugar stores are better than natural stores?” The editor still believes he was correct as to what was **then** accepted as good practice on the part of the beekeeping public generally, and insisted that at the time he was only reflecting those views. Dr. Miller retorted by saying that he did not care if the whole world was against him, that pound for pound natural stores are better than sugar stores. Of course, he specified good honey and not unripened aster or other fall stores. At the time, Dr. Miller was ably supported by G. M. Doolittle and J. L. Byer. The latter asserted that a number of the prominent Ontario beekeepers had discovered that stores of good honey well sealed would go further than sugar stores.

There are not a few who hold to the contrary view at the present day; but the pendulum is swinging, and swinging strongly, to the position held by Dr. Miller when he was considered as all but a heretic on the question.

Lest our position be misunderstood, we will admit that sugar stores fed early, and sealed in the combs, are equal to or possibly better during the **coldest part of the winter when the bees are not breeding**; but after that, **honey** stores are unquestionably better. When a colony has exclusively sugar stores it incurs the great danger of spring dwindling if the spring is bad, because there will be no young bees to take the place of the old ones dying off. Sugar stores are likewise probably equal to, or better, during the period of actual confinement of bees in cellars. When we say “sugar stores” let it be understood that no brown sugars will answer. Some of us learned to our sorrow last winter, when we could not get granulated sugar, that brown-sugar stores contain too much gum. Better by far have an inferior honey than any brown sugar or molasses.

* * *

The Honey Market.

IN THE face of the sugar market wabbling like an ordinary up-to-date politician, and in the face of government reports on honey that indicate a “dull season,” “no sales,” and “no demand,” some beekeepers may be inclined to lose their heads. But there is no cause for alarm. What is taking place is exactly what was to have been expected, only the most of us hoped that it would not come quite so soon. All should remember that, as a result of the great World War, our country, as well as all others, is going thru a process of reconstruction—a process that was inevitable. Every one has known, of course, that war prices were inflated, and that necessarily a time would come when those prices would come down. Foods particularly are showing a decline—especially sugar, vegetables, and fruits. But honey has suffered by no means the same decline that some foods have. Indeed, it is fair to say that it has more than held its own. It is remarkable that honey prices have not gone lower than they have.

Honey is apt to act in sympathy with sugar. When the latter goes up, the former climbs with it. But, most fortunately, honey has not suffered the same ratio of decline that sugar has; and beekeepers, instead of being scared, should be happy that they are not hit harder than they are.

There is another cause for congratulation; and that is, that the very finest table honeys are only indirectly affected by the decline in sugar. As a rule, the best extracted honeys net the producer about 50 per cent more than the wholesale price of sugar; and a glance at the markets will show that this ratio is holding good at the present time. It is largely the medium grades of extracted that are directly affected by the price of sugar; and even then the bakers must have invert sugar; and an **artificial** invert sugar will not compete with a good grade of amber extracted honey, which is a natural invert sugar. Of course it is understood that bakers always use granulated sugar, and that in large quantities. But they also require an invert sugar either granulated sugar inverted by acid, or honey that needs no doctoring. Just at present honey is more than holding its own for their purpose.

But perhaps the beekeeper is alarmed by what he sees in the government honey reports. It should be remembered, however, that government quotations are based on what buyers, jobbers, and commission men tell the government reporters, who, in turn, transmit what they are told to the Bureau of Markets at Washington. Naturally these reporters get their information from somewhat prejudiced sources. The city buyers are inclined to talk "no market," "no demand," etc., because that kind of talk would mean a lower price to them. It is plain that it is no fault of the Bureau of Markets that the situation is not painted brighter than it is, because the government is not supposed to give futures or prospective prices, but to report exactly what it finds on investigation of actual sales and crop movements.

This should not be construed as in any manner criticising or discrediting the work of the Bureau of Markets. The government honey reports have done good, and we could ill afford to have them stop now, and there is no good reason to suppose that they will. The situation now is "a condition and not a theory."

The general public should understand this economic fact—that, when prices are advancing on general commodities, the market on those commodities is active, and both buyers and consumers are interested in buying and buying heavily before the price goes any higher. But when the general market is declining all along the line, both buyers and consumers are inclined to buy in small lots and then wait to see what is going to happen. This is precisely the situation with regard to honey today. The large buyer is not going to lay in a big stock until he knows that the market has stabilized, and he will be mighty sure that it has stabilized before he runs a chance of losing on a big purchase. In like manner the housewife is not going to lay in a big stock of foods when prices seem to be going down. She will buy from hand to mouth just as the jobber does, getting only enough for her immediate needs.

We do not believe there is any one in this country who can tell whether prices on extracted honey are going to be lower or higher; but there is one thing of which we may be sure: The time is coming when there will be an active demand for honey. That does not necessarily mean that the price will be higher. While there is no disguising the fact that there is no great movement of honey at the present time, it is mighty encouraging that the large honey warehouses thruout the country are not filled with honey. It seems as if the time would come when those warehouses will have to have a supply. There is no economy in working from hand to mouth—in buying in small lots and paying freights on small shipments, and then, worse than all, waiting almost indefinitely before deliveries are made.

What advice have we to give? Absolutely none. The question whether the producer shall sell or hold will have to be determined locally and individually. We certainly do not advise congesting the big markets just now. At retail, honey is bringing good prices; and our advice to beekeepers is to sell locally and where possible, sell at retail. But when you do, put up your honey in attractive form, and be sure that it is good honey.

We have never seen the time, and we do not expect to see it now, when a really fine article of extracted table honey will not bring a fair price as compared with other articles of its class. Even at the present price, whatever that may be, we should not forget that a pound of honey will buy more of other foods than it did at the highest prices that prevailed during war times. Don't forget that.

It would be good business for local beekeepers to advertise. The owners of this journal will do their share in that line, and even more than their fair share. Watch the popular magazines, especially those going to women.

So far we have not said one word in regard to comb honey. In spite of the decline in all lines of food, it is encouraging to know comb honey has more than held its own. Indeed, it is selling now for more than it ever did before in its history, and there is a great demand for it. But there is only very little of it in the United States today, and the markets are practically bare. Bottlers are putting out some very attractive packages of extracted honey; but no liquid honey in the bottle can begin to compare with beautiful white comb honey in clean sections. Somehow a pretty white comb of honey gets a hold on the housewife—she "must have it," and she will have it when she sees a fine article, irrespective of the price. After the great war broke out, comb honey did not bring any higher price than extracted. The export demand called for something that would ship. In fact, the liquid article seemed to have a better demand. We urged housekeepers at the time to run for extracted honey. Times and conditions have utterly changed since then. The tables have turned. Comb honey brings more than double what it did before the war. All of the old comb-honey producers should go back to the production of comb honey, and also many new ones. This will have a tendency to tone up the price of extracted, and at the same time supply a demand for comb honey that never can be satisfied.

Taking it all in all, we believe that beekeepers have much to be thankful for.

George S. Demuth

WE have already notified our readers that George S. Demuth, of the Bureau of Entomology, a man who has lectured on beekeeping in almost every State in the Union, as well as giving most careful attention to bee problems in those States, will become editor-in-charge of Gleanings from now on. Before he begins to take a hand in the work, and while he is finishing up his labors in the employ of Uncle Sam, it is fitting that I should tell our readers something about the man and his qualifications for the new job he is about to undertake.

For the last 10 years I have had my eye on the man. More and more as duties have crowded on me, and as the years went by, it became increasingly evident that I should have to have an assistant who could relieve me. I made overtures to Mr. Demuth a few years ago, but was unable to get him. I felt all along that I needed a man who understands beekeeping problems all over the United States. These problems are so varied and so different in different States of the Union that it needed some one of nation-wide knowledge of beekeeping conditions. Mr. Demuth, trained as a teacher, had a very successful career as foul-brood inspector in Indiana before he entered the government service. He also made his bees pay. Even after he left his home in Peru, Ind., and went to work for Uncle Sam, he still kept his apiaries in Indiana and made them pay, and pay big, notwithstanding he was 500 miles away. While in the government service the only time he was with his bees at all was during the vacation period in summer. Mr. Demuth pursued the policy of putting his bees up so well in the fall that they needed no attention whatsoever in the spring except such few directions as he could give to an attendant until he came to see them the following summer. And even after he left the bees he would tell an attendant what else to do with them. It was a case of let-alone beekeeping for 11 months of the year that was a wonderful success. If I should tell our readers the crops of honey he has been harvesting year after year, 500 miles from his bees, with only four weeks of personal attention, they would hardly believe it. But his income from his bees has been very much in excess of his salary received from Uncle Sam, and that was no small figure.

While he was in the government service for a period of 10 years he had at his elbow one of the best scientifically trained minds in the United States. I refer, of course, to Dr. E. F. Phillips. It is one thing to know practical apiculture. It is another thing to know how to interpret certain known facts. Phillips and Demuth have made a working team that has materially advanced modern apiculture in this country. We consider that a man trained in scientific apiculture by Phillips is no small acquisition to Gleanings' staff.

In the government service Mr. Demuth has traveled all over the United States; and while doing so he has gone into beekeepers' homes, looked over their apiaries, and studied their problems first hand. In not a few instances he has pointed out mistakes that men who have been long years in the bee business have not observed. The chief mistake, as pointed out elsewhere, was in not having colonies strong enough in harvest.

While his hearers have believed this, they have not practiced it. The main reason for the failure, as he said, was poor wintering; and poor wintering was due to a lack of stores and insufficient protection in the first place.

Personally, George Demuth is one of the most likable of men. Out of a warm heart and even temper spring gentleness, kindness and charitableness for all men and all views.

As I have already stated, I shall continue to gather data from all over the United States and send them in to Mr. Demuth. I shall do the field work, writing feature articles and some editorials; but the responsibility of making a good journal will rest on the shoulders of Mr. Demuth. I shall likewise throw material into the hopper, including the best photographs that I can produce; but Mr. Demuth will make the selection. Miss Fowls will continue as assistant to him, and H. G. Rowe will be managing editor as before. E. R. ROOT.

* * *

The Wintering Problem North and South.

OUR SOUTHERN beekeepers, or at least those in the tropics and semi-tropics, used to say they were not interested in the discussion of how to winter bees, as they had no winter problem. But many of them have since learned to their sorrow—especially those who have gone from the North to the South—that bringing bees from a late fall into early spring is often a more serious matter in the Southland than here in the North. It does not need protracted periods of zero cold to kill bees. In fact, cold will not kill them when conditions are right. The serious mistake made by many of the southern beekeepers is in not having sufficient stores. A colony in the South requires two or three times as much honey as one in the North; and unless it is well supplied brood-rearing will be held in check, with the result that there will be a weak colony entirely unfitted to gather the first flow of honey. A colony that is not strong by the time of the first flow, so far as the honey crop is concerned, might just as well be dead, and that same principle applies either north or south.

Thruout some of the southern States and in California the editor has run across hundreds and hundreds of weak colonies. When the fact was brought to the attention of their owners they often said they did not know why their colonies were weak. An examination of the combs in practically every case showed that the bees must have fallen short of stores in the fall. Twenty-five pounds of stores in a climate where the snow seldom or never falls is altogether inadequate to carry a colony thru until the next honey flow, which may be in February or March.

Some southern beekeepers are making the mistake of saying that 25 pounds of stores will be enough because "the bees will be gathering something all winter." But too often this expected "something" does not materialize, on account of a peculiar winter—a winter that is not so uncommon as it might be. It is far better to have 50 or even 75 pounds of stores in reserve. If the bees gather something during the winter, well and good; and should there be a surplus of stores in the spring after new honey comes in, the old stores can be extracted.

It is always a mistake to draw too heavily on a colony's reserved supply for winter, either north or south. M. H. Mendleson, Ventura, Calif., one of the oldest beekeepers in that State, has repeatedly made the statement that if the beekeepers would allow their colonies to have more stores in the fall they would not only avoid starvation but would have strong colonies for the orange, which comes early. From information which the editor gathered in California, not half of the colonies in that State are strong enough to be of any use in the orange flow that is often heavy. The same general mistake is made in the Carolinas and Georgia, as well as in Florida, Alabama, and Texas—that is to say, the lack of stores during the previous fall has resulted in weak colonies the following spring—colonies that are practically useless when the flow comes on.

The new editor-in-charge of Gleanings was one of the first, if not the first, to discover this great defect in semi-tropical wintering. Before he takes formal charge—that is, before he arrives in Medina—we feel that this statement should be made.

So far we have touched directly only on the southern problem. Much that we have said thus far would apply to the northern beekeeper—the one whose bees are or ought to be, at least, in packing-cases, double-walled hives, or good cellars. The bees in the colder climates are not threatened with starvation to anything like the degree that the bees in the South are; but unless the colonies are well supplied with stores—preferably natural stores—well housed, their chances of securing a crop the following season are very much less.

The matter of how to pack the bees or how to construct the cellars has already been covered in these columns. If, then, the bees are well supplied with stores, and are well housed, the northern beekeeper, so far as his bees are concerned, can fold his hands and take life a little easier; but, so far as his business is concerned, he will not fold his hands. He will get ready for the next season, and that is no small job. He will clean up his supers, sort over his combs, nail up his frames and hives, and put in his foundation. He will select his locations for outyards, having always in mind accessibility. If he is any kind of salesman he will sell his honey locally; and if there ever was a winter when this should be done it is the one before us.

FRIENDS PAY TRIBUTE

To the Memory of that Great Beekeeper and Friend of All Beekeepers the Late Dr. C. C. Miller

FROM beekeepers everywhere have come expressions of deepest sorrow and regret because of the death of the venerable and venerated Dr. C. C. Miller, whose beautiful spirit departed this world at his home at Marengo, Ill., in the early morning of Sept. 4, 1920. The news of his death came to these friends with a peculiar sense of sorrow. It meant the loss not only of a friend and counselor but of a truly great character and great heart. It was as if a loved and loving father had risen suddenly from the family circle about the evening fireside, and gone out into the night to return no more. The heart ached, the memory longingly wandered back over the path of the years they had so pleasantly walked together.

Now these friends of Dr. Miller come to pay tribute to one who was truly their guide, philosopher and friend.

LIFE AND WORK OF DR. MILLER.

The life and work of Dr. C. C. Miller were a benefit to the beekeeping of America and of the whole world which can be measured accurately only in after years. Those of us who have had the pleasure of laboring in this field while he was making his contributions to the science and art of beekeeping know well that in many ways we are indebted to him, but it will take time for the proper weighing of his life in terms of helpfulness to fellow-beekeepers. One can now do no more than to express feebly a sense of personal loss and to tell a few of the more outstanding benefits from his work. One thing is clear: there has been no beekeeper of the past half century who was his superior.

Beginning in 1861 and until his death, Doctor Miller was interested in bees, a record of prolonged activity in this vocation rarely if ever equalled. Since 1878 it was his sole business. Naturally his earliest beekeeping was unimportant, but in 1870 he made his first contribution to the beekeeping press, and for fifty years his writings have formed an important part of our literature. Even the editors of the bee journals have not contributed more to the current literature than did he and probably he wrote more "copy" than did any other writer of the time. His writings are distinguished by accurate diction, clarity, humor, and sympathy.

To discuss in detail the investigations that Doctor Miller carried on in beekeeping would virtually be to write a history of beekeeping of the past half century, for there have been no important discoveries or events of that period in which he did not play some part. He began beekeeping before the days of the comb-honey section and lived until the time when extracted honey largely replaced comb honey. The period of comb-honey production brought forth the keenest work in beekeeping practices of any period in beekeeping, for all the problems are greatly intensified in comb-honey production. Naturally we do not give to Doctor Miller credit for all the brilliant work of this period, but all must admit that no man of the time made more important contributions to comb-honey production than did he.

In his first book, "A Year Among the Bees," he recognizes the two great problems of that and of the present day as follows: "If I were to meet a man perfect in the entire science and art of beekeeping, and were allowed from him an answer to just one question, I would hesitate somewhat whether to ask him about swarming or wintering. I think, however, I would finally ask for the best and easiest way to prevent swarming, for one who is anxious to secure the largest crop of comb honey." His later books contain almost the same phrasing, except that he omits mention of the winter problem, indicating clearly that during the comb-honey period swarm control stood out above all other problems in importance. In the brilliant work on this subject he had no superior and to his work we go for the methods which finally won out. However, comb-honey production, and the small colonies incident to the beekeeping methods of that period, brought on the wintering problem acutely, and in this work also he excelled. A careful study of his writings reveals a knowledge of the needs of the bees during the winter, and his results were better than those of most other beekeepers of the time.

Altho comb honey is passing, until recently Doctor Miller continued to produce it, and as late as 1913 (at the age of 83) he broke all records of per colony production of sections. But even at his advanced age he did not stick tenaciously to his old methods, for during the past few years, altho reducing the size of his apiary, he took up the production of extracted honey. We can not paint an adequate picture of the character of the man, but we get an illuminating sidelight in the fact that he took up this new line, not to make his work easier, not because others were producing extracted honey, but because he might thereby help to make honey a more freely used food on the table of the average family.

The more recent changes in beekeeping methods in no way reduced the importance of Doctor Miller's work and influence. One of the most important, if not the most important, contributions of his life came late in his experience. In 1909 (one is tempted to say fortunately—for beekeepers) European foul brood broke out virulently in his apiary. Up to that time various methods had been advocated for its control, but there was no agreement on the subject and virtually no progress was being made. Doctor Miller's location is not one in which this disease would continuously do serious damage, but thru a total failure in the white-clover honey crop that year his apiary became heavily infected, giving him abundant experimental material. The work which he did that summer and the careful record which he month by month laid before the beekeepers thru the journals form the basis for the first real progress in the control of the disease, which has caused and is still causing losses of thousands of dollars annually. The point which deserves special emphasis in an appreciation of the man is the fact that the disease was virtually absent from his apiary the following year, and from that time on he was not seriously troubled by it, for in one season he had solved the problem of European foulbrood control. To the work he took an accurate knowledge of the efforts and mistakes of others, an appreciation of the nature of the disease and, above all, a keen scientific mind. His work on this disease is his greatest monument.

To have led beekeepers in investigations of better methods was an accomplishment, but perhaps as great a service lay in his efforts to prevent mistakes. The comb-honey era was replete with bad methods, proposed in the effort to solve the serious problems of the time, and no beekeeper outdid Doctor Miller in pointing out the errors arising from incorrect or too scant observations and from faulty conclusions. He was at all times tolerant, yet he could in his finished style lay bare in a few words the foibles of the upstart or the vicious advice of the unscrupulous. He was tender with those who erred thru lack of information, and it sometimes takes a close observer to detect his glee in the slaughter of the ungodly.

We can continue to point out the good things that Doctor Miller did, and beekeepers will continue so to do for many years, so long as beekeeping is carried on. These things serve to make clear the admiration and respect in which he is held by his fellow beekeepers. Such statements fail, and fail utterly, to make clear the affection and love in which he was held by beekeepers everywhere thruout the country. I have had the opportunity to speak before groups of beekeepers in most parts of the country, and it has rarely been possible or desirable to close a talk on bees without telling of something that Doctor Miller did for the industry. Reference to his work and to him invariably brings forth a warm smile of appreciation. A few years ago I took some photographs of him in the apiary and these have been used all over the country as lantern slides: never have they been shown that they did not call forth applause. How may we account for this high esteem in which he is held by all his fellow workers?

Dr. Phillips and Dr. Miller talking it over. (Aug. 20, 1920.)

The outstanding characteristic of Doctor Miller's life, and the thing for which he is most loved, was his keen interest in "things," as he expressed it. Two weeks to the day before his death five beekeepers visited him, and of those present at that happy meeting no one was younger in mind than he. He told us then that he had always supposed that as one grows old his interest in things would fade away, but that on the contrary he found himself more and more interested as the years passed. The youthful spirit of the man is illustrated by the fact that when over eighty years of age he took up a new line of work, the growing of gladioli. Always a lover of flowers, he began this work at this age as a specialty. He grew corms for sale by the thousands. The flowers were not for sale, however, for aside from the dozens of cuttings in his home his best "customer", as he expressed it, was a children's hospital in Chicago, to which the cut flowers were sent daily. Not only was he growing these flowers on a commercial scale, but at his advanced age he carried out experiments in cross-pollination. Recently he made several hundred crosses and grew the resulting seedlings, and of the number he saved out for further work over a hundred of some promise. Of these he finally selected over twenty of the best and he told us that he hoped from these to get six or eight varieties worthy of perpetuation and naming. It takes perhaps ten years to secure enough corms to offer a variety for sale, but this seemed not in the least to decrease his eagerness for new forms, which he could scarcely hope to use commercially. His interest in these flowers was so keen that he hesitated to let us, uninitiated in gladioli, to find out how "crazy" he was about them, and he refused to tell us what he had paid for certain rare and valuable corms. This at the age of ninety years! Such a man is one for whom a person a half century younger in years can feel the same friendship and affection as for one of his own age. His mind was as young as ever: only his body was old.

To explain the heartfelt affection in which he was held by beekeepers generally would be a foolish task for any but a master writer. In essential respects I have an advantage over the master writers, for I knew Doctor Miller, and, too, I know how beekeepers feel. I know that his death brings to all of us a feeling of great and irreparable loss. Yet at the same time our feeling can not be that only of sorrow, for his death was but the closing of a finished life. He had finished his work, permitted to him by the worn body that served as a vehicle for his young mind, and our feeling at this time can scarcely be other than one of thankfulness that he lived so long and that we were privileged to know him, to learn from him and to imitate him in his all-embracing desire to help those with whom he had contact.

To put these thoughts in words is not an easy task, nor would it now be attempted were it not for an assurance that the readers of these comments will charitably say that here are stated feebly what we all think: in the death of Doctor Miller we have lost a dear and close friend, but we are better beekeepers because of his work and better men because of his life.

Washington, D. C. E. F. Phillips.

* * *

UPRIGHT, STERLING LIFE.

While away from home last week, preparing one of our apiaries for winter, Mrs. Byer called me by long distance phone and informed me of Dr. Miller's death. I was spending the evening at the home of some beekeeping friends, and when I told them that Dr. Miller was dead, no questions as to who was meant were asked, for while there are doubtless many men of that name in the land, to beekeepers everywhere there was but one "Dr. Miller." As one of the younger men engaged in the business, it was not my good fortune ever to have met the good Doctor personally, but I have had a very little correspondence with him and, in common with a great host of others, learned to love the man for the many admirable qualities he possessed. Anything I could say as to his qualities as a beekeeper would be superfluous, as we

Characteristic Attitudes

"What's That?"

"Now, let's see about it."

You are dead wrong.

and the laugh was on the other fellow.

all knew him as an outstanding figure in the business not only from a national but from an international standpoint as well. He was not only an exceptionally good beekeeper but he also possessed to a remarkable degree the faculty of being able to impart the knowledge he had to others. But it was not only as a beekeeper that he influenced so many of us, but rather because of his upright, sterling life, devoid of any suspicion of cant, but nevertheless an earnest and fearless exponent of principles he believed to be right. He possessed the gift of being original and anyone who has ever had any correspondence with him knows that brevity was a trait he was gifted with. As to his originality, pardon me for recalling a little personal incident. As many know, our departed friend was a stickler for good English, and he always protested against the term "shook swarming" so much in vogue some time ago. I happened to refer to this phrase one time in Gleanings and called it "butchered English." A few days after Gleanings was off the press, a post card came to me with the following brief message: "Dear J. L. 'Butchered English.' Ha, ha! Best thing that has appeared for a long while. Tell Mrs. Byer that I just love that good man of hers. C. C. Miller." Coming from anyone else, I would have been anything but pleased with such a communication, but coming from Dr. Miller, frankly I appreciated it much at the time and more than ever now that he is gone.

Dr. Miller stood for the highest type of a real Christian. He not only professed to be a Christian, but lived such a life that no one could know the man and not know what he believed in that line. While the great majority of his friends no doubt believe in the principles he upheld, yet his life was a pattern for even those who believe differently, for in the words of Burns:

Listening to what George S. Demuth had to say about it.

"If there is another world he lives in bliss,
If there is none, he made the best of this."

Markham, Ontario. J. L. Byer

* * *

A LIFE WELL SPENT.

With the passing of Dr. C. C. Miller, consistent Christian, savant and prolific apicultural writer, the beekeeping world has sustained an irreparable loss. His characteristic thoroness, fairness, fearlessness and love of seeking after the truth has rendered his service to beekeepers of supreme value, and they have abundantly profited by his life and works. The thoroness with which he examined and discussed apicultural questions gave to his conclusions a peculiar Miller value. He possessed the rare literary gift of fine and accurate definition between what he knew to be true and that which was doubtful or which had not been demonstrated. Truly his was a life well spent, industriously, aggressively and vigorously; not alone for personal compensation but by letting his light shine, for the material and moral uplift of all engaged in the occupation he loved so well. It is often said that the character is stamped in the expression of the face. What a wonderfully beautiful and lovable character, then, was that of Dr. Miller.

The ranks of beekeepers past and present include many characters remarkable for their good will and liberality in endowing apiculture as they have been endowed, and to one of the best and greatest of these I offer this humble tribute.

Kenmore, N. Y. Orel L. Hershiser.

* * *

RADIATED GOOD HUMOR AND HAPPINESS ON ALL.

I have been favored for many years with a personal acquaintance with Dr. Miller. I am not sure now as to the exact date, but it must have been nearly forty years ago that we first met at the convention of the Northwestern Beekeepers' Association at Chicago.

There was something that seemed to attract us to each other and tho we seldom met oftener than once a year, we grew to be very good friends. I was a young man then and I was "Jimmy" to him, but we had tastes in common and some of the brightest recollections of my life are of the talks I had with him during the pauses in the conventions in the various cities where we met, or on the little side trips which we made together or in company with others of the old timers.

That which impressed me most in my acquaintance with him then and since was the absolute sincerity and honesty of his life and purposes. He could see both sides of a question as few men can and when he did not know the answer to a problem, he never hesitated to say so.

A sincere Christian, he lived his creed and no one could be intimately associated with him without being bettered by it. Lovable as a man, he radiated good humor and happiness on all.

Few men have done more good to beekeeping than he has in his writings, helpful alike to the expert and the beginner.

Grand Junction, Col. J. A. Green.

* * *

PRACTICED WHAT HE PREACHED.

Dr. C. C. Miller was one man among many, and one that all who knew him at all personally admired for probably one reason above all others, that he practiced what he preached. This quality, apart from his standing in the beekeeping profession, made him an outstanding man. His kindness and thought for the lesser beekeepers was always very much appreciated by myself. It is with deep regret that I heard of Dr. Miller's passing; but, I have no doubt that if he could be with us, he would tell us not to grieve, but to carry on.

Guelph, Can. F. Eric Millen.

* * *

AN INSPIRATION TO OTHERS.

It never was my pleasure to meet Dr. Miller in person; but I learned to love and revere him thru his writings, which on several occasions have helped to solve problems for me. Also, his persistency in his early beekeeping life, tho handicapped, has given me inspiration. The entire fraternity, and especially the newborn beekeeper, will sorely miss him.

East Jordan, Mich. Ira D. Bartlett.

* * *

WONDERFUL PERSONALITY.

Permit me to enter this brief letter of tribute to Dr. C. C. Miller, whom it happened to be my pleasure to visit just a short time before his death.

I am too new in the bee world to appreciate fully the many things that Dr. Miller has accomplished in beekeeping. However, it must be a wonderful personality indeed, who at the age of eighty-nine holds the admiration and good will of the entire beekeeping world. I had long wondered at this, but was able to understand after our visit. His very keen intellect and appreciation of Nature, along with his very lovable nature, were apparent in his every word and action. I think the enthusiasm which he seemed always to have had must have also been a great factor in the interest which he was able to arouse in others. He was one of the most stimulating men I have ever met.

It would be impossible for me to express in this short space my feeling with regard to the great service he has done the beekeeping industry thru his very careful observations and willingness to give the information free to all and at all times.

Madison, Wis. H. F. Wilson.

* * *

OF MORE HELP THAN HE SUSPECTED.

Has there been anyone in all beedom half as much beloved as Dr. Miller? I think not. Everyone always has had a word of appreciation for him and for the help his words have been to them. It is impossible to specify the sundry branches of bee culture in which he has most helped.

But far and away above his service to beekeepers in their work is his life example as a thoughtful, kindly Christian gentleman. Generous in his praise, he was equally just in censuring where censure was needed. By thoughtful advice he turned many of us from unsuspected faults and helped us to about-face and attempt, like him, to be of use to our fellow men. To me personally he has been an inspiration, and his occasional letters have helped me in more ways than one, more than I can explain or than he suspected.

A few years ago it was my good fortune to spend a day at his home—and a real home it was. I treasure its memory as a precious possession.

Providence, R. I. Arthur C. Miller.

* * *

HAD THE COURAGE TO SAY "I DON'T KNOW."

We who have read Dr. Miller's writings thruout the years of our beekeeping experience, feel that we owe much of our success to his kindly way of telling what he felt sure of, and having the courage to say. "I don't know," when in doubt. Living about 2000 miles apart, I had the pleasure of meeting the Doctor personally only two or three times. He was found to be just the kindly, genial, whole-souled man that he had been represented to be by the fraternity. A pleasant visit at his home in Marengo in 1904 added to my appreciation of his splendid qualities. He was a beekeeper who was not in the business wholly for the money that it would bring to him, but one who gave generously of his time for those things that go to make better men and better women—one, who as the lengthening shadows come year by year, had so enjoyed life that he could say, "If the next world is any better than this, it must be a fine world." What better inspiration could anyone give?

Corona, Calif. L. L. Andrews

* * *

ALMOST LIKE A FATHER TO ME

I think no other man ever came into my own life and influenced it as did Dr. Miller. For 20 years he was almost like a father to me. Without him the American Bee Journal would not have been anywhere near so valuable as it was during the time I owned and edited it; as his eagle eye, his brilliant brain, and his thoro and extensive beekeeping experience were all in and upon the Journal. In some ways he was more to me than my own father. He called Mr. Root and me "his boys," and how he used to watch over us as we conducted our two bee papers! He enjoyed it, too, as did we. If ever one man loved another man, I surely loved Dr. Miller. As you know, his character and life were so beautiful, so Christ-like. I never knew him to utter a single unkind word or remark about another person. He never even thought evil, I am sure, let alone utter it. How often I have wished that all the beekeeping world could know Dr. Miller as intimately as I knew him for so many years. No one could help being better for having known Dr. Miller. His influence was as a sweet perfume that permeated all about him. I could not restrain the tears when I received the letter telling of his death, and can scarcely do so now as I write. I only wish I could help pass on to others a little of his kindliness, his love for mankind, and his broad sympathy for all. And his home life with his wife and her good sister! Wasn't it beautiful? Just a bit of Heaven itself dropped down upon earth.

Spokane, Wash. George W. York.

* * *

REFLECTED THE LIFE OF HIS MASTER.

Few beekeepers in our whole country will be more missed or more sincerely mourned than Dr. C. C. Miller. He was a careful, thoughtful, and original student of beekeeping, and a most successful beekeeper. Comparatively few of us here in the East were personally acquainted with him, but we knew him best by his genial, kindly, and helpful contributions to current bee literature.

His articles, often bubbling over with humor and good will, were usually the first to be read and enjoyed. If you did not always agree with him, you could not help but admire and love him for his kindly way of disagreeing from you.

After all, we most often think of him as the simple, earnest, consistent, Christian gentleman, day by day and year after year, clearly reflecting the life of his Master. By such a life we are lifted to a higher plane and realize there are better things in life than success in business, the accumulation of wealth, or other objects so often thought supreme.

He was always a jolly good fellow. (Dr. Miller is in the center of this smiling group.)

As the great Teacher forever dignified the trade of the carpenter, so the business of beekeeping has been honored and lifted to a higher plane by the life and work of Dr. C. C. Miller.

Middlebury, Vt. J. E. Crane

* * *

PLACED BEEKEEPING ON HIGH PLANE.

It would be difficult to enumerate even a fair share of the many ways in which Dr. C. C. Miller has been of service to beekeepers.

Perhaps the whole may be summed up in the superlative degree to which he has combined very successful beekeeping with a free and pleasing manner of writing his experiences and advice.

In his teachings what has attracted me most is the high plane on which beekeeping has been placed. He resigned both a musical and a medical career in each of which his prospects were bright, and taught the world that beekeeping, a far more obscure calling then even than now, is one good road to health, happiness, and a comfortable income.

Doubtless the most valuable part of his teachings on bee management is his careful attention to essential details, especially with regard to selection in breeding and the careful rearing of queens.

My personal recollections of Dr. Miller are confined to one meeting with him at a convention and brief kindly letters of appreciation on something in my writings which interested him. We all feel very keenly the loss of Dr. Miller.

Georgetown, Ont. Morley Pettit.

* * *

UPHELD THE CAUSE OF CHRIST.

My first recollection of Doctor Miller goes back to days when the International was at the height of its influence, in the early eighties. He was a man who tried to hold himself free from prejudice. He tried to be of a judicial mind, and I know he succeeded singularly well. His opinion was respected in every quarter of the globe. He was firm, and when principle was involved unyielding; but not aggressive. With it all went a sweetness rare in such characters. Men can write of wherein he was of the greatest service to his fellow-men and beekeepers, but I have to go to those things which are eternal and I with him rejoice in the day when he and I shall sing the new song of a common Saviour worthy of the lamb that was slain and has redeemed us to God by the blood. He was not ashamed to uphold the cause of Christ.

Brantford, Can. R. F. Holtermann.

* * *

HIS WHOLE SOUL ENTERED INTO HIS SINGING.

To know him was to love him.

I always associate him with his beautiful song, "Lead me to the Rock that is higher than I," that he sang at one of our conventions at the State house, when the I. O. O. F.'s were in session at the same place. They crowded the door of our room, with tears flowing down their cheeks, which they could not repress. His whole soul seemed to enter into his singing.

We cannot feel that he is wholly lost to us for with such dear friends as he was, we shall spend eternity around the throne of God, where there will be no more good-by's said.

Springfield, Ills. Jas. A. Stone.

* * *

HIS ENCOURAGEMENT AND GOOD CHEER.

Gleanings is always a welcome guest, and how eager we beekeepers are to rip open the wrapper to see what is the latest in beedom. But as the October number was opened, the cover page told the sad story we were half expecting and yet were not prepared for. As this number with Dr. Miller's picture on the cover page reaches its many destinations, thousands of beekeepers will go about their work among the bees with heavy hearts—he was like a father to many of us. I was well acquainted with Dr. Miller thru his writings, and have many letters from him that I prize. I met him only once, and, as I remember it, he spoke only one sentence to me. It was at the St. Louis convention in 1904. I was walking by the Christian Endeavor Hotel, which was the beekeepers' headquarters, when I spied Dr. Miller. I knew him as well as if I had been brought up with him. I went up to him and introduced myself. He put out his hand and with his characteristic smile said, "The greatest pleasure of these conventions is to greet old friends and make new ones." And he made them wherever he went.

The greatest good Dr. Miller has done to beekeepers has been the encouragement and good cheer he has given them. In a technical sense he has given inspiration to many in producing larger honey crops, as many would not have believed such large crops could be harvested if Dr. Miller had not proved it to them.

Vincennes, Ind. Jay Smith.

* * *

GREATEST OF AMERICAN BEEKEEPERS.

Upon receipt of the news of the death of Dr. Miller we bare our heads and stand in humble reverence in contemplation of the life and work of this greatest of American beekeepers. Surely our loss is irreparable; for to whom shall we turn for the counsel, the guidance, and the wisdom which have for so many years distinguished the writings of Dr. Miller? His writings have made an especial appeal to me because of the enthusiasm and inspiration which they always contained. Surely he was a great optimist!

I loved his cheerful, happy manner not only because of its tremendous influence on others, but because to me it was an outward expression of the faith which he had in the ultimate good, his confidence in mankind, and his unerring faith in the Divine.

Dr. Miller was an honorary life member of the Michigan Beekeepers' Association, and in his passing we feel that our loss is one which cannot be replaced.

East Lansing, Mich. B. F. Kindig.

* * *

WE ALL LOVED HIM.

We of the beekeeping world loved Dr. C. C. Miller for the better beekeeping he taught us. His own people loved him because they shared daily the courteous qualities which made of him a man. Now that he has passed from this world, we should make his loved ones feel that our hands stretch out to them across the empty spaces, attempting to share the loss with them. Yet, who shall say it is a loss? Since better beekeepers everywhere practice some of his methods, he has made himself worthy of better things than we could give him.

In his place we hold a sacred memory of him and his work. To have known him was to have gained an understanding of the words: "Verily, verily, I say unto you, except ye become as little children, ye shall not enter the Kingdom of Heaven." It has been a wonderful privilege to have been of even meager assistance to him in his efforts toward the success which was his. I am happy to have shared his friendship.

Watertown, Wis. Kennith Hawkins.

* * *

WE WORK WITH HIM THRUOUT THE DAY.

Doctor Miller's place in the hearts of beekeepers everywhere is a wonderful tribute to the man. We say we loved him because he taught us much about beekeeping, but others have also contributed much to our fund of information. We say we loved him because he taught so well, but others have also presented their subjects well. Behind the great mass of information he has given us and behind the method of presentation is the beaming spirit of a great and good man, which so illuminated the facts that beekeepers everywhere have been greatly influenced by them.

Those of us who have followed his teachings can get some idea of the magnitude of this influence by noting how, at every turn in a day's work in the apiary, we follow some phase of his teaching. We say to ourselves again and again as we work, "Doctor Miller would do it this way," and thus we work with him thruout the day. What a pleasure and what a privilege to work with such companionship!

Washington, D. C. Geo. S. Demuth.

PROFIT IN HONEY VINEGAR

New and Valuable Kinks in Making this Vinegar as Taught by the Michigan Agricultural College

By Russell H. Kelty

"Turn refuse honey into profit by making honey vinegar" is a suggestion most beekeepers will do well to investigate. Properly made, honey vinegar contains from 50 to 100 per cent more acetic acid than commercial cider vinegar and has a flavor and "bouquet" that cannot be duplicated. As the vinegar is about the same color as the honey used, any color is possible from water white to dark. It is the sugar content only which is concerned in the transformation of honey into vinegar, and refuse honey of any kind can be used, and so sold as vinegar for from 40 to 75 cents a pound.

The directions are comparatively simple but must be followed faithfully to insure success. Carelessness will likely ruin the barrel of honey-water, or at best give a vinegar weak in acid content and poor in flavor. Reports are received from beekeepers who simply mix honey with water haphazardly and get "good vinegar," but my experience has been that this is risky business, usually resulting in complete loss of honey used. I have made more than 20 barrels of honey vinegar by the process described with splendid success. In fact, the demand for it is greater than the supply.

In the first place, the successful making of honey vinegar demands a warm place, 80° F. being the best temperature for growth of the yeast used to ferment the honey. At 65° F., slightly less than room temperature, fermentation goes on but much slower and with less vigor. The yeast used is a champagne yeast and should be secured before ready to make the vinegar. Compressed or other bread yeast can be used, but gives the vinegar a slightly beery taste; whereas the champagne yeast produces a delicate flavor and aroma in the vinegar, which is very desirable in the making of pickles, salad dressing, etc. Both the vinegar yeast and chemical salts necessary for best fermentation can be secured at cost on application to the Michigan Agricultural College. The price is 25 cents each for one-barrel quantities.

Before ready to make the vinegar it is also necessary to secure a suitable barrel or barrels as the case may be. Barrels previously used for cider or other vinegars or for grain alcohol are best, but these are often hard to get. The barrel must be water and air tight and thoroly disinfected with flowing steam or boiling water. Failure to disinfect the barrel properly may result in total failure thru wrong fermentation. In this connection it is necessary to point out that if fermenting honey is used for making vinegar it should be brought to a boil before dilution to kill the wild yeast responsible for the fermentation. This yeast and the one used in making vinegar are not the same.

When yeast and barrel are ready, the honey and water are mixed together. By experiment it has been found that the best proportion of honey to water is one and one-half pounds of honey to a gallon of water. Soft water is perhaps perferable, but tap water can be used. Heat at least part of the water to dissolve the honey properly. The amount of honey necessary to make a barrel of vinegar will vary with the size of the barrel. It is necessary to leave an air space in the top of the barrel, and 50 pounds of honey added to 36 gallons of water is sufficient for a 45-gallon barrel. It is more convenient to mix honey and water in a tub or storage tank before pouring into the barrel. After mixing, the temperature of the honey-water should be lukewarm. Dissolve the chemicals (food for the yeast) in a quart of the honey water, add the yeast culture—one culture is enough for several barrels of vinegar — and after stirring thoroly pour into the barrel.

Bung the barrel and seal air-tight with wax if necessary. Secure a piece of rubber or glass tubing a foot long, and, using an auger the same size as the tubing, bore a hole thru the bung and insert one end of tube one and one-half inches into the hole in the bung. Dip the other end of the tube into a glass of water placed on the barrel, thus allowing gas to escape from the barrel thru the tube, but not permitting air to enter. This is necessary for best results.

Allow fermentation to continue till no further gas is given off. This usually takes from two to four weeks. Then remove the bung and add a liberal quantity of mother of vinegar. a pailful if available, altho less will do nicely. At this time air circulation in the barrel is necessary, and some prefer to assist by boring two or more small holes in each end of the barrel above the level of the liquid. Place a piece of cheesecloth over the bung and other holes to keep out flies, etc., and allow to stand from three to six months. By tasting one can tell when the vinegar is getting ready for use, but an accurate test by a chemist is necessary before the vinegar is placed on the market, as the law requires it to contain at least four per cent acetic acid. We have secured as high as eight per cent from the above method, in which case the vinegar is diluted before marketing.

This may seem like a long and tedious process, but it really is not when once one is prepared for the job; and, in our experience, short cuts have proved failures.

East Lansing, Mich.

FROM THE FIELD OF EXPERIENCE

INTRODUCTION BY FASTING

Two More Beekeepers Discuss Problems of This Way of Introducing

Mr. Carr's article on the fasting method of introduction took notice of the difficulty in transferring the queen from the "traveling" to the "starvation" cage.

The writer has used a device which obviates this difficulty, and he has pleasure in passing on the idea. As it enables the queen to be transferred without fingering by the beekeeper, it may prove of some use to the nervous or inexperienced by facilitating this operation.

Take an empty common match-box and prepare it as follows: Slide out the inner section, and with a sharp knife cut part of the bottom out, having a margin all around of about ¼ inch. Get a small piece of window glass cut to fit snugly inside of the bottom and put in and secure there with a few drops of melted wax. Take the outer section of the box and cut a corresponding hole in one side, and when the box is put together the article is ready for use.

To use: Open the traveling cage before a closed window, and when the queen is crawling up the glass place the starvation cage (well opened) over her and when she runs up, as will be seen thru the glass, close the cage and leave her to be starved as long as thought necessary.

The introduction of the queen takes place thru the feed hole in the hive cover, or cloth quilt if used. A puff of smoke being blown into the hole, the starvation cage is placed in position over it and the outer part slipped off. If the queen does not go down at once, the glass-bottomed part can be left covered up and removed later at convenience. Archibald Fergusson.

Strachur, Scotland.

* * *

I noticed with much interest an article in the August issue of Gleanings, entitled "Introducing by Fasting." The plan outlined appealed to me as one having merit, and I at once gave it a try-out. So far, I have not had a single failure, and in two cases the colonies had fertile workers. It seems to me if it works with the fertile workers it would work anywhere; but, of course, I have not had time to give the plan a very extended trial under all conditions. The point I want to get at now is just how much starving a queen will stand without injury.

The writer of the article, I believe, stated 45 minutes as being sufficient time for a queen just taken from a nucleus, and an hour for a queen that had been caged for any length of time to be reduced by starvation to a state in which she would "behave herself." Now, in no case have I been able to get a laying queen to that state in one hour—usually it is considerably longer.

I took some young queens that had been laying about three weeks to an out-apiary in Benton mailing cages for convenience in handling. I had them caged only one and a half days, and it required nearly two hours in every case. I don't know but that may have been too long a time, but the queens were as spry as crickets and were too wild to be put in a minute sooner. So far, I can notice no ill effects; but, of course, sufficient time has not passed to tell if they suffered any injury by so long a period of fasting. While I like the plan, I think it quite probable it may call for considerable skill on the apiarist's part in judging just when the queen has had all she can reasonably stand without impairing her usefulness. On the other hand, queens may stand considerable starvation without injury. I don't know and would like to hear from someone who has had experience.

Mr Carr also stated that he had no plan for transferring the queen alone safely and easily to the fasting cage.

For some time back I have never introduced a queen in the mailing cage with the attendant bees; so I evolved a plan to separate the bees and queen, as I generally use a "Jay Smith" push-in-the-comb cage, or a Miller-Thompson cage, with the queen by herself and with candy I know to be pure. I believe the candy used in mailing cages to be as a rule free from disease, but I don't feel like taking any chances, so I burn the mailing cages the first thing.

My plan is to make a small cage or box into which a mailing cage will slip endwise. This may be done by taking three strips a little wider than the cage and nailing them together like the sides of a push-in-the-comb cage, having one end open. Wire screen will do for the back, but the face is made of a piece of zinc queen-excluder. To use the fasting cage, remove the tacks from the wire cloth on the mailing cage, being very careful to hold the wire cloth in place so the queen does not escape. Slip the mailing cage into the other cage, open side to the excluder, raising the wire screen as the cage enters. When the cage with the queen and bees is inside the other cage it has a queen-excluder face instead of screen, thru which the bees readily pass leaving the queen. Sometimes the bees are reluctant to leave the queen, but this can be readily overcome. The above plan has worked well for me and has advantages over the method of letting the queen "crawl up a window."

El Cajon, Calif. Geo. B. Dickerson.

FROM THE FIELD OF EXPERIENCE

LESSON IN HONEY SELLING

The Efficient Direct Seller Goes Out of His Way to Please a Customer

"A farmer called on us yesterday selling honey," said the family man. "A man with enterprise enough to sell direct always has my moral support, aside from my experience that products bought of him usually represent some saving. So I said, 'Perhaps I'll take some,' and went out to his businesslike little auto truck drawn up by the gate.

"The farmer pulled a pail out of the truck. 'Five pounds,' he explained, 'Five pounds for $1.35.'

"'Haven't you something smaller?' I suggested. 'That's more than we can use, really.'

"'Pshaw!' grunted the farmer, near-scorn in his voice, 'you can use five pounds! Why, that ain't nothing. The stuff will keep. Why, we —.'

"I was rather nettled. I told him we doubtless could consume that quantity if we had to, but our annual experience with honey was the same. We had a great appetite for it for a short time. Then the product palled on us. The family did not care for more. We could use a pint jar, possibly even a quart, but that was our limit. Didn't he ever put honey up in those quantities?

"He didn't — never had. He persisted in his astonishment that we were such poor honey-eaters. He went away wrapped up in that astonishment.

"Say!" concluded the family man, "if every direct seller was built like that chap, do you suppose I'd answer their door-bell rings? I might, but I doubt it."

Like this honey peddler, there are many farmers who sense the profit-making opportunity in selling direct, and tentatively try out the method, only to display critical lack of salesmanship in their intercourse with consumers. This honey-man did. He had a sale practically made, with an opportunity to acquire a permanent annual customer. He "fell down" miserably because of an inability to grasp quickly the situation and adapt his tactics to it.

There is a certain well-known slogan which is rigidly lived up to in many large mercantile establishments. It is "The customer is always right." Even when a clerk knows the customer is in the wrong, he is taught to abide by the slogan, "The customer is always right." The customer, whose good-will is absolutely essential to success, is no person to argue with or dispute with. At any rate, he is sincere—he believes he is right, and any intimation to the contrary is pretty sure to antagonize him.

It happened that in this case the customer actually was right. He knew what his table requirements were, and there was nothing strange about them, as the honey peddler indelicately suggested. Some people don't care at all for honey. Others like a little. Some like a lot. The peddler should have recognized these varying demands in putting up his honey. Pint jars, quart jars, five-pound pails and ten-pound pails would have been a good assortment. It would have enabled him better to satisfy a retail trade.

If he had wished to push for large sales, he could still have done it in this case. He should have been well primed with information about the use of honey in cakes, candy, and other cooking. Comparatively few housewives know of the cooking value of honey. The family man, acquainted with this information, might have called his wife out. There would have been a chance of converting the family who wanted a pint or quart into a five-pound purchaser.

It is certain that, if the direct seller had used this selling point consistently in his canvass, he would have increased to a noticeable degree the total quantity sold.

This would simply have been using that intimate knowledge of his product which every salesman is expected to have. Had it not interested the family man and his wife, there still remained open a successful termination to the interview.

"I'm sorry I haven't a quart jar with me," he should have said, smiling, "but I'll put it up and bring it around. Glad to fix you out."

The merchant who goes out of his way to "fix out" a customer, whether his product be honey or baling-wire or poultry feed, is laying the foundation for permanent good-will and patronage. The honey man, ten to one, could have sold the family man another year. That he did not see his opportunity and grasp it indicated an ignorance of one principle as important in direct selling of farm products as it is in many mercantile enterprises — that "repeat sales" are the side of the business where profits hide. Permanent customers—they should be considered indispensable, whatever the product sold. The efficient direct seller is in business as permanently as the druggist, and like the druggist he needs a permanent clientele.

Boulder, Colo. J. T. Bartlett.

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BURYING BEES IN TRENCH

Idaho Beekeeper Has Used Plan Successfully and on Large Scale

I was well pleased with the result last winter of burying my bees, yet think I might improve another time. For a locality

FROM THE FIELD OF EXPERIENCE

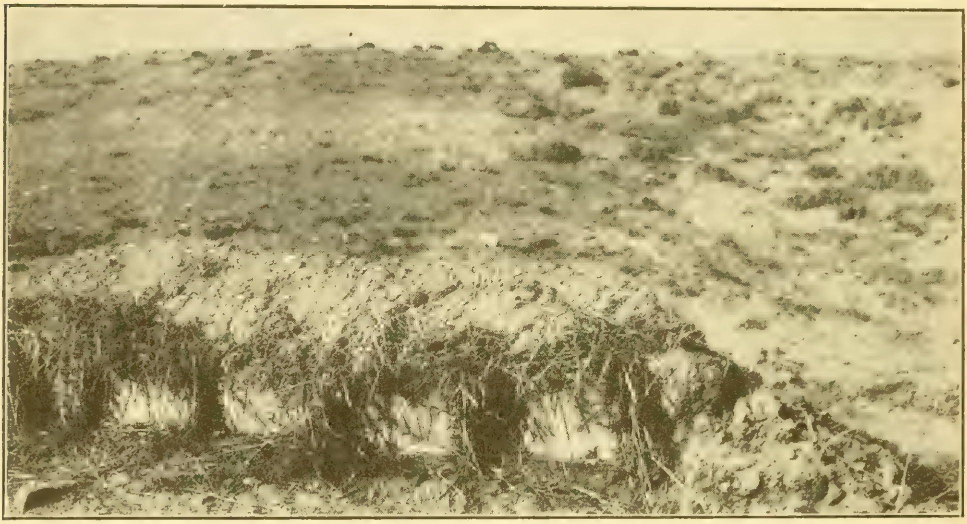
where it is cold and dry, the method might be even more desirable than for mine. Last winter I used only sufficient packing to keep the earth from going between the hives. In a cold climate I would use six inches of straw all over the hives except where the entrance-tubes are.

The trench is a dead furrow running east and west, and made with a team and plow. Another time I think I would make a back furrow, first plowing six or eight feet wide, then plowing a dead furrow in the middle. This would make the ditch on higher ground and prevent water from entering in the spring. The walls form a right angle into which the hive is placed with the back against one wall and the bottom against the other, the entrance being toward the south.

Into the entrance should be inserted a fly-tube made of tin. These tubes are easily made of 15-cent milk-cans. Throw the cans on a pile of weeds and set on fire. Then knock the heads off and pound them into tubes ⅜ inch in thickness, or just so they will go into the entrance of the hive. In each tube put two small strips of wood to keep the pressure from closing the tube. Drive a small nail thru the tin and each strip of wood at the middle to prevent them from slipping out. This will make three bee-entrances; but with the thumb and finger draw the two protruding sticks nearly together, leaving only a bee-space.

Pack earth around the tube, then lay a 1 by 6 board just so the edge will protrude over the tubes. Set the hives as close as they can be placed together, and over the top put six inches of straw and four or more of earth. After all is done, examine each tube to see that it is not stopped up. See that the inch board extends over the tube slightly to prevent the earth from falling down the end and closing it. It is well to clean out a little under the end of the tube, which will make it absolutely sure that there will be no stopping it up in the winter. With a board over the tubes, they were not bent nor stopped up, tho the trenches are on a spot in the sagebrush where sheep are herded and the lambs have great fun in playing on the banks.

And now for the results. I buried the first hive in the garden Oct. 15, having picked it up from the side of the shop a few rods away. The next day was bright and warm, and the bees were at work on the sweet clover and aster. I expected that many of my bees would go back to their old stand, but they all marked their location and went back to the tube, and for two weeks did good work carrying in honey. Next an apiary of 100 hives was buried on Nov. 1. The weather was warm, and each colony marked its location. Two other apiaries were buried after this date. I went to Denver in December, and was there until March 1. December was cold, with the temperature at times below zero. January was warmer, with a good many days when the bees were busy flying. I was not with the bees, and left no one in charge, for I felt that, whether the days were cold or warm, the bees were all right. March was mild and very wet. We had two snows that were each five inches deep, and heavy and wet. They both went off with a rush, leaving much water. I watched the bees and noticed on level land one trench which was filling with water. I at once lifted the hives and found a few inches of water in them,



How Thos. Chantry of Wellington, Utah, buries his bees in the open plains country.

but no special damage. I took them out soon after, April 1. In some of the hives there was a tendency to mold but not enough to damage the combs. Only two per cent had died—a few of these from foul brood, but not a robber bee had entered thru the tubes. The hives apparently had all the bees and honey they had in the fall. I carried them to their summer position on a cool day, and to my knowledge there was no confusion nor drifting.

This plan of wintering, I have found, has a number of good points in its favor. When there are warm days in winter the hives will not warm up at that depth unless the temperature is such that the bees can take a good flight. In cold weather, with the amount of heat that each hive would give off I do not think there would be a freezing temperature. If they are dry, the bees can be kept where the cold winds will not hit them. The entrance and bank facing the south will absorb some heat. One can leave the bees, and foul-brood hives will not be robbed out. There is no damage from fire, nor of thieves pilfering the combs. In cold weather they would be hard to get while under six inches of frozen ground. This thieving of combs is getting to be quite a nuisance in many localities.

This is certainly a good and cheap method for all dry and cold climates. In warmer and moister climates one must use judgment and go slow. I should like to see it tried in cold climates like the Dakotas and Minnesota, and also some parts of California. I remember visiting an apiary in Berkeley in early spring, and I was surprised to see only a handful of bees in each hive. They probably wore themselves out flying in the winter.

Having the bees down in the ground prevents their warming up; and yet the ventilation being at the top the foul air all passes out. The expense of this kind of wintering is very small. For a hundred hives a ditch nearly 150 feet long will be needed. I had a farmer plow the trench. A helper and myself put in 100 hives in two hours. I then shoveled on the earth at my leisure, but a plow might be used to good advantage to throw the earth up to the back. The tube and work did not exceed ten cents per hive. The saving of honey that the bees would consume might amount to $7.00. The bees can be put in at any time after the honey flow is over until the ground is frozen. But I prefer putting them down early so they may become settled to their condition before winter.

If the reader wishes to try this on a small scale, a small trench can be dug with pick and shovel to hold a few hives.

Caldwell, Ida. W. L. Porter.

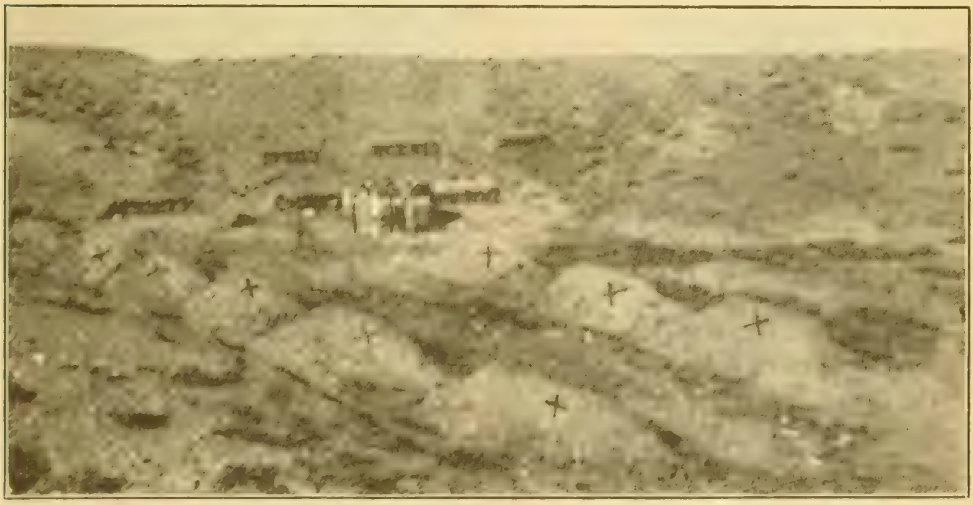
* * *

LOW-PRICE HIVE-PRESERVATION

Better Preservation of Hive Parts with Greater Economy

To the man who uses but few hives yearly, the subject of hive-preservation may be of small interest, even with paint at the present high-price level. But to the aggressive commercial beekeeper, with hundreds of new hives and supers yearly, the subject of more economical efficient hive-preservation from the effects of weather is of no small importance.

It is customary, with most beekeepers, to



Ninety-five colonies buried Nov. 1 and only two dead when taken out May 18. Crosses show where bees are buried.

FROM THE FIELD OF EXPERIENCE

give all new hives two or three coats of paint, and there are excellent reasons why three coats may be more economical than two.

A good painter told me some years ago that one reason why three coats are a far better protection than two, is, that if only two coats are applied, the high points on the more or less smooth wood are poorly covered, and soon become exposed to the weather, by the disintegration of the linseed oil in the thin coating of paint which covers them; but, by adding a good third coat, all are so well covered that these high points cannot soon carry moisture into the wood. Here it is well to say, that in most cases cheap paints are a snare and a delusion, and so are substitute oils.

But the best of paints, especially white or of light color, goes all too soon, particularly in the arid regions; and one reason why the best paints hold so poorly on beehives is the excessive moisture within the hive at times, which works thru the wood, swells it, and loosens the paint, both by the stretching incident to the increase of width of swollen lumber, and the tendency to loosen and destroy the oil in the paint by reason of the presence of moisture and air.

Several writers have suggested the painting of the inside of all hives, or coating them inside with paraffin, in a measure to stop the absorption of moisture from within. The idea is a good one.

Recognizing the paramount importance of economy and utility, I have devoted some thought and effort toward a solution of the problem—better preservation of hive parts, with, if possible, greater economy.

Perhaps a recital of some things tried may be of interest and save others needless experimentation. Some years ago, I conceived the idea of immersing hive bodies for a few seconds in boiling paraffin. The hot paraffin soaks far into the corners and ends of the boards, and sufficiently into the edges and the sides, and for about two or three years makes a good preservative, tho the hives for a year or two are rather slippery to handle. The heat of the sun's rays drives the paraffin into the wood, so that in three years the hives look almost as dark colored as those not painted or coated. Where the sun's rays fry the wax into the wood, and largely away from the surface, the surface may be in fair condition to receive a coat of paint. It is possible that there is more or less actual evaporation or disintegration of the paraffin.

Perhaps the hives might be dipped in a thin white paint to give a light color, then when dry dipped to advantage in boiling paraffin. Some have advocated the use of products such as carbolineum, creosote oil, creosota, etc.; but all, I believe, have an obnoxious odor, and all give a dark color unsuitable for single-walled hives.

While visiting Thomas Chantry a few years ago, the writer was told of a formula used somewhat in Utah, and this too was tried here. The first coat is composed of separator skim milk and portland cement; the second coat, of linseed oil and ocher. The hives so painted show fine results in part, but there is a marked tendency for the paint film to scale off corners and edges in large scales. As in cement there is an alkali destructive to paint oils, perhaps the first coat, when dry, could be dipped in a solution to neutralize this alkali, re-dried, and then the finishing coat applied with better results.

Years ago, a "cheap paint" was described in the Review. I lost the formula, but made up something somewhat similar, and boiled hives in it, applying a second coat by hand to the outsides only. They are light in color and the compound may prove good, tho being compounded without any particular knowledge of paint chemistry, etc., it is doubtful.

A former helper, who had worked in a factory where agricultural implements were made, told of their method of painting. The first coat was made by diluting good paint with half naphtha, into which all wooden parts were dipped, the other coats being applied with a brush.

This method of applying the first coat, by dipping into the thin, naphtha-diluted paint, probably secured better penetration of the first coat than is usually secured, and if so, would favor the retention and adherence of the paint film, with consequent greater durability, to say nothing of the saving of time. Even the thin coating of paint, so secured, on the insides of the hives would help in preventing the hive-moisture from soaking thru the wood and destroying the paint on the outside of the hives. As no naphtha is here obtainable, I have been unable to test the plan.

I owe to Mr. Simmins of Texas the economical plan of boiling bottoms or covers in tar or asphalt roofing paints; and all bottoms will be so treated hereafter, as there results a greater saving of time, and, no doubt, the bottoms will be far more durable than when paint is used.

One can use a double flat cover with air-space, as used by Mr. Simmins, a single flat cover with a substantial inner cover, or a telescope lid, preferably of cypress, redwood, or cedar, providing an air-space above a substantial inner cover, and by any of these plans, there is no trouble with the black lids causing overheating of the colonies. If black telescope covers are used with quilts, doubtless overheating will result.

The writer black-boiled 30 telescope covers and then used them in a location entirely without shade, over inner covers ½ inch thick, with a ¾-inch air-space between inner and outer covers, and a ventilating space at the edges, and the colonies showed no evidence of distress or overheating. Telescope lids so boiled need no tin, as the coating is waterproof and can be cheaply renewed.

It is time that the fraternity wake up to the fact, that it is only by a careful study of economy, with improved results, that we can overcome the ruinous handicap of falling prices of our product, with constantly high costs of everything that we use and buy.

The purpose of this article will be achieved if there results some practical study, by paint chemists, of compounds into which (boiling hot perhaps) hive parts may be dipped, coating them in a few seconds inside and out with a light-colored, penetrating, protective film, superior in weather-resisting powers, and perhaps cheapness, to any paint now known. Certainly such a compound can be devised, if the necessary talent can be enlisted, and the times are surely ripe for its development.

Meridian, Idaho. E. F. Atwater.

* * *

DEFEATING THE ANTS

A Unique Scheme Devised by Two Enthusiastic Backlotters

R. B. Calkins of Oakland, Cal., one of the head men in the office of the Western Union in San Francisco, and secretary of the local bee society, is an enthusiastic beekeeper. Indeed, both he and his wife have the bee fever, and have it strong. It is hard to say which one suffers from it or enjoys it the more. Of course, they attended the winter course in beekeeping at Davis, Cal; and so much interested was Mr. Calkins that he took down the whole course of lectures in shorthand, and afterward advertised them, neatly transcribed in typewriter, in the columns of this journal. See his advertisement on page 413 for the July issue, 1919.

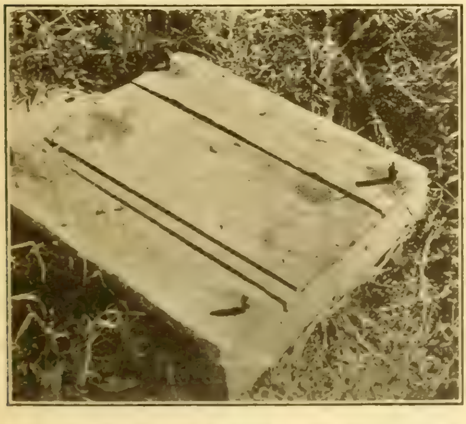


Fig. 1.—The Calkins ant-proof hive-stand. It differs from no other hive-stand except that near each of its four corners it has 20-penny spikes driven in about half their length and gauged to fit snugly to the inside rim of the reversible bottom-board on each side. Around the projecting portion of the spikes is wound felting which is afterward soaked in axle grease. On top of these four nails is carefully adjusted a colony of bees as shown in Fig. 2. For obvious reasons the alighting board connects with the hive-stand and not with bottom-board of hive.

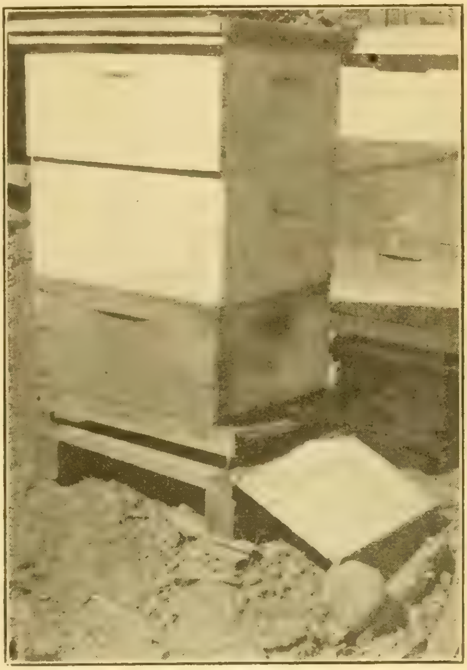


Fig. 2.—A colony of bees resting on four 20-penny nails driven half-way down into the hive-stand As explained in Fig. 1, these nails are surrounded with felting which is dipped in axle grease, which does not evaporate so readily as creosote, altho the latter would be satisfactory. Ants are real pests in Berkeley. The colonies thus protected are free from any further visitation of their old friends the enemy.

In company with Cary W. Hartman of Oakland, Cal., who, with Mr. Calkins, organized the Alameda County Beekeepers' Socity, I called at the home of the Calkinses, and while I failed to find them on the first trip I got them on the second. It was a real inspiration to meet them. Verily they seemed to have found the fountain of eternal youth. Mrs. Calkins seems to be the main beeman, because her husband is tied up with his Western Union business.

They have a pretty little apiary located among the eucalypti in the rear of their home yard; and as one takes a glance thru the hives he can not fail to note that somebody is bestowing on them loving care, and that person is Mrs. Calkins. Now to the point of my story:

One of the troubles encountered was the small red ants. Not to be outdone by these "pesky things," Mrs. Calkins devised a very unique scheme for keeping the ants from the hives; for it should be remembered that this pest in warm climates is a serious one in some localities. It was particularly so in the Calkins yard, two colonies having been killed by the worrying they underwent before the "anti-ant" stand was perfected by Mrs. Calkins.

How did Mrs. Calkins meet the difficulty? Into the four corners of the regular hive-stand she drove four 20-penny spikes about half their length. Around the portion of the nails sticking out she wound some felting, and this felting was soaked in axle grease. "And now, you pestiferous ants," said she, "if you think you can climb over that axle grease and make more trouble for my pets, I will see what else I can do."

But they didn't climb. The first hive proved the success of her scheme; and it was not long before she had ant-proof hive-stands under every one of the colonies.

I asked, "Mrs. Calkins, how did you get those two-and three-story colonies, heavy with honey, off the hive-stand and put them back again after you applied your ant-proof device?"

"That is easy," she replied. "I waited till Mr. Calkins came home at night and we two did the job together."

Why the two of them? Why did not the man do it all? If you could see Mrs. Calkins you would know she loves to be outdoors, and she shows it in her rugged health. I'll venture the statement that she could lift as much as or more than her other half. She dons her farmerette beesuit, and is ready for anything; even accompanying Mr. Calkins to their summer yard in the alfalfa fields, 70 miles away, in the San Joaquin Valley. Both of them are real students of beekeeping, which accounts for their rapid progress in apiculture. Mr. Calkins showed me a file of Gleanings complete to the very first "windmill" number, dated January, 1873. They believe in knowing what to do before they try to do it.

Mr. Calkins' health has been none too good, but work outdoors among their bees is rapidly recovering it for him.

Medina, Ohio. E. R. Root.

* * *

AN AUSTRALIAN BEEKEEPER

Who Decided to Keep the Prop and Let the Farming Go

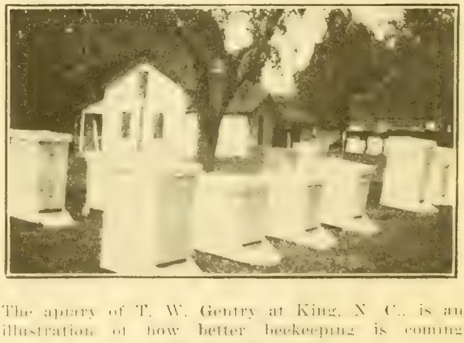
George Rich of Enterprise Apiary, Maryborough, Victoria, Australia, may be said to have been brought up with the bees, for his parents, having kept bees in England, always retained a few colonies in box hives. As the boy grew up he was considered a wonder at handling bees, and used to remove a good deal of honey for neighbors. He early formed the opinion that beekeeping is more profitable than general farming, altho until 1902 he had never seen a modern apiary. When he did, however, he at once grasped the advantages of movable-frame hives, and the very next day sent for some. Upon their arrival he transferred his bees from the old box hives, and the first season obtained a ton of honey from his 21 colonies of blacks.

The year following he went to Thomas Bolton to learn the business, and spent three seasons with him, after which time he carried on beekeeping along with general farming until he finally gave up the farming to devote his whole time to the bees. This he was largely induced to do by reading Hutchinson's "Advanced Beekeeping," in which the latter wrote that if beekeeping had to be propped up by something else, better throw the bees away and keep the prop. Mr. Rich had been using the bees to prop up the farming.

He is fortunate in being able to say that he has never had a complete failure of crop, tho this is no doubt due to skillful management. His bees are in Langstroth hives and are a very fine grade of Italians, which he has bred up by constant selection. He considers his greatest problem to be the prevention of swarming. His prevention method is to take combs of brood from strong colonies to strengthen the weak, or to form new ones, replacing the combs removed with frames of foundation. As is largely the custom among progressive beekeepers in Australia, his colonies are distributed in out-apiaries and moved from place to place to meet varying conditions.

Melbourne, Australia. B. Blackbourn.

* * *



The apiary of T. W. Gentry at King, N. C., is an illustration of how better beekeeping is coming along in that State.

STRAY STRAWS

Dr. C. C. Miller

B. Brewster calls me down, and justly too, for injustice to Mr. Alexander in speaking of the matter of leaving the strong colony uncovered for a time before setting the weak colony over it. I spoke of it as something new when in reality it was given by Mr. Alexander himself. Mr. Brewster refers me to Gleanings, 1906, Nov. 1, page 1358, where Mr. Alexander says, "I should leave the strong colony uncovered, except with the excluder, for a few hours before setting on the weak colony." I am ashamed of myself and thank you heartily, Bro. Brewster, for calling attention to the matter.

* * *

"It is time to give supers when the bees begin to plaster bits of white wax along the top-bars." In spite of the antiquity of that rule, I haven't the profoundest respect for it. Unless I am greatly mistaken, those bits of new wax, plastered where no wax is really needed, are an indication that the bees are already crowded for room, and just that far on the way toward swarming. We want to forestall the very first beginning of a crowded feeling; and so supers should be given in advance of any feeling of need for them. In white-clover regions it is a good plan to begin giving supers as soon as the very first white-clover bloom is found opened. Each year I am on a sharp lookout for that first blossom, and in many years' observation have always found that surplus storing begins just ten days later. Where there is no white clover I suppose some other flower may serve as a guide.

* * *

I'm not sure I've noticed a case of the kind lately, but years ago I had a good many cases in which, after the introduction of a queen, a good many bees would be found dead in front of the hive. It looked as if there had been two parties, one favorable to, and the other antagonistic to, the new candidate, and a battle had ensued. Perhaps in all cases of the kind the introduction was successful.

* * *

BOTANY BEES.

Full many a tomato plant
Would never blush nor bear,
Without the bee to gallivant
And shift some pollen there.

He travels in the honey line,
But sets the vines aglow;
Which shows the finest things we do
Are not the things we know.

I do not care for honey much,
And yet I prize the bee;
The fair tomatoes that I love,
He makes 'em blush for me.
—Chicago Daily News.

Note.—These last "Stray Straws," by Dr. Miller, were written late in 1919, and had been left in the editorial drawer with the hope that the Doctor some day could complete the page.—Editor.

SIFTINGS

J. E. Crane

VERY little honey has been gathered by bees in this section since July 20, with the result that a good deal of feeding of sugar will be required to carry them thru the winter. We thought them very well supplied the last of July when supers were removed, only to find some of them starving when looked over in September.

* * *

Some of my largest annual sweet clover plants were cut Sept. 1 to show at our county fair. Some of those left standing are today (Oct. 4) six feet tall and in full bloom, less than four months from seed.

* * *

It is not often that we have an oversupply of pollen in our hives, but when we do, it may be well to test the plan, given by J. T. Dunn on page 615, for getting rid of it provided the weather is warm and dry.

* * *

If it was necessary that there should be another editor for Gleanings in Bee Culture, I know of no one better fitted for the job, or that we should have preferred to Geo. S. Demuth. May abundant success follow his efforts in this new line of work.

* * *

Sweet clover has come to the top as a honey plant in the United States (page 586). A little more than 50 years ago M. M. Baldridge, in the American Bee Journal, first called the attention of beekeepers to its good record and value as a producer of honey. What plant comes next?

* * *

It was a nice thing for Dr. Phillips, E. R. Root, Geo. S. Demuth, and H. F. Wilson to visit Dr. C. C. Miller while he was yet able to receive them and enjoy their visit. It was a good delegation, and we of the ranks who have so often wished to make such a visit may feel that we were well represented, and that the visit was ours as well as theirs.

* * *

The question of the proper temperature of the cellar for bees is quite fully discussed on page 586. Except in a general way it seems a little difficult for the average beekeeper to gauge his cellar by thermometers, but I have thought it a good rule to keep the bee cellar so far as possible at such a temperature that the bees will remain the quietest and with least noise.

* * *

There has been for many years some disagreement among beekeepers as to the bees' needing fresh air and cellar ventilation during winter. The statement is made on page 586 that Government experiments have shown that the value of ventilation consists in controlling the temperature of the cellar and not in purifying the air. This is an exceedingly important matter, and explains the different opinions of various intelligent beekeepers on the subject of ventilation.

* * *

Probably no subject occupies so much space in our bee journals as that of wintering bees, and perhaps no other subject is so important. When we sum it all up the two most important things appear to be the temperature of the cluster and the amount and quality of the food. There is an almost endless variety of ways of maintaining the temperature, which each beekeeper must work out for himself with his own conveniences or with what he has at his command.

* * *

We are grateful to Stancy Puerden for her conservative statements of the food value of honey, page 607. It is well to know in a scientific way the place of honey in a well-regulated diet. Some have claimed that a pound of honey is equal to a pound of butter—a statement which we know to be false. It is a comfort to know that it may be used with bread with decided advantage, especially by those, like myself, who use little or no butter. It is well to know that honey contains many of the elements of nutrition on which our health and happiness depend. We are glad to know also that comb honey can supply what is so necessary to health — the fat soluble A vitamines found in butter, and that honey, to a considerable extent, can take the place of butter in our diet.

* * *

Jay Smith, on page 591, brings out a thought that was new to me and may be to others, that bees compelled to expend their strength the latter part of summer in ventilating their hives waste a good deal of vitality that should be conserved to carry them thru the winter. I believe he is right, and so conclude that it is better to give bees abundant ventilation until late autumn. This season, the last week in September was one of the warmest of the year, and after nearly all the brood had emerged. Had we reduced the entrances when the supers were removed, there would have been quite a loss of labor in ventilating their hives. Mr. Smith is also quite right in thinking that for early brood-rearing there is great value in double-walled hives with abundant packing in early spring.

OUR FOOD PAGE

CONSTANCE ROOT BOYDEN
Stancy Puerden

WHEN I opened the October number of Gleanings and read the first paragraph in Mr. Crane's department I went right up in the air, as my husband expresses it. Let me hasten to explain that I was not in the least annoyed at Mr. Crane's perfectly natural surmise that the reason the fat-soluble vitamine was not found in extracted honey as well as comb was because heated honey had been used for the test. Mr. Crane was and is and probably will continue to be all right, but the editorial staff was—not, decidedly not in my opinion. They should have given me a chance to reply briefly on the same page. One would think their food writer lived in Hong Kong instead of in the same town and within a block of the editorial sanctum. Being of an impatient nature I always dislike to wait a month for a reply, and I will venture to assert there are others who feel the same. There is always the chance too that many will read the question and not the tardy answer.

Let me quote a sentence from Mr. Crane's article to enable you to understand the reply: "But I have been wondering since reading Mrs. Puerden's account of vitamines whether the clear honey used in these investigations was not bottled honey that had been sterilized to prevent granulation, which might be the cause of finding few or no vitamines in honey without the comb."

No, one sample was white clover extracted honey, unheated. The other sample was the blend which is used for filling bottles, heated, not sterilized, only to the point found by long experience to be sufficient to prevent granulation under ordinary circumstances, a point which is no where near the boiling point. Boiling honey ruins the delicate flavor. The feeding experiments with the rats showed both of these samples of honey, the unheated and that subjected to a moderate heat, to be deficient in the growth factor known as fat-soluble A.

Altho not neccessary in answering the question I might add that recent developments show that the vitamines fat-soluble A and water-soluble B, the vitamine which is found in minute quantities in extracted honey, are comparatively little injured by heat, but the anti-scorbutic vitamine, known as water-soluble C, is quickly injured by heat.

BUT even tho it seems to be a fact that the fat-soluble vitamines are in comb honey only I am inclined to agree with Mr. Crane that it is doubtful if they are in the wax itself. In writing the article it seemed best for me to quote Prof. Hawk's findings without comment, but I cannot help feeling that nature, our inadequate word for the supreme Intelligence who directs the universe, would not waste those vitamines on the wax, which is not a food for the bees but contains their food. It is probably presumptuous for me to say so, but I wonder if the vitamines in comb honey may not be so volatile that they are lost in the process of extracting. We are told that they are probably ferments, and isn't it reasonable to suppose that they might speedily evaporate when removed from the comb and exposed to the air?

If some of you recall the story, told on this page, of the general manager of a chain of theaters who recovered his health on an almost exclusive honey diet, you may remember too that he stated that he had to eat comb honey, that he did not receive the same benefit from extracted. But he also said he rejected a large part of the comb.

AFTER the above was written and set up in type, information came to me that a certain famous sanitarium, which effects its cures entirely by means of diet, sanitation and exercise—no medicine whatever—serves no sweets to its patients except honey. I hope to be able to tell more about this in a later issue.

BEFORE I leave the subject of vitamines, and please remember that Mr. Crane and not I introduced it this time, I wish to call your attention to an interesting article on the subject in the issue of the Youths' Companion for Sept. 23. It was written by Dr. C. W. Saleeby, F. R. S. Edin. F. Z. S. (my typewriter fairly choked over all those fine sounding letters). Every bit of it is valuable to mothers or others who plan food for their families, and yet it is written in a style easy to understand. The paragraph which I am going to quote might be termed a concentrated argument in favor of the eighteenth amendment:

"Beer is remarkable because, tho it is derived from materials rich in various vitamines, no vestige of any vitamine survives in it. Indeed, for us in many parts of Europe beer must be reckoned the most common and nationally important example of a preserved, artificial, and—because deprived of vitamines — devitalized 'food.' This I must insist upon because the contrary has been asserted by some writers, not men of science, who have heard that malt and yeast are rich in vitamines, but who have not thought it desirable to ask themselves what is likely to happen to those delicate agents when treated as the brewer treats them."

"WHAT'S in a Name?" Several years ago, when one of the editors of Gleanings engaged me to write for this department, I decided on a pen name for this reason:—I wanted to see if I could win a little place in the hearts of the Gleanings readers which was all my own, a place which was not given me because they knew my father, my brothers, or my husband.

Notice by comparing the names at the head of this page that I translated the first syllable of "Boyden" into Latin, converting it into Puerden. Doubtless my former Latin teachers would have been surprised and pleased had they foreseen that even one Latin word would stick in my memory. For the first name I resurrected a seldom used and almost forgotten nickname, "Stancy."

The many cordial and appreciative letters which have come to Stancy Puerden in the past three years encourage me to believe that I have won that coveted corner in the hearts of at least a part of the readers, and now having proved my point I am going to write under my everyday name hereafter.

To tell the truth, in addition to a desire to be perfectly open and frank with my friends—I never could keep a secret—there are other reasons: The pen name has proved to be somewhat ambiguous, for I have received many letters and at least one telegram addressed to "Mr. Stancy Puerden." The inference that I have a masculine style of writing may be flattering, but there were times when it was a bit embarrassing.

The pronunciation and spelling have seemed difficult too, for my brother always cheerfully mispronounced Puerden, and my own husband has been known to misspell Stancy. And in the October issue of Gleanings the name appeared "St ancy Puerden." Did the type break loose or are they trying to canonize me before I am dead?

And last, but not least, our oldest son, who will be twenty-one Nov. 2, just in time to cast his vote in a presidential election at the same time his mother has that privilege, is much interested in the chemistry of honey and wax and has written some articles along that line, and naturally I like to be known as his mother, especially as we have been invited to write a book together.

JELLIED MEAT.

3 lbs. beef, veal, or chicken
½ small onion
1 clove
1 tablespoon vinegar
salt
2 tablespoons granulated gelatine
water

Heel piece or forequarter beef may be used, but any lean beef, chicken, or veal will answer. Cover the meat with boiling water and simmer slowly in a tightly covered kettle, seasoning with salt when about half done. It may be cooked in a steamer or fireless cooker. When done, remove from the broth and cool. Remove fat from the broth, by cooling if necessary, add the onion and clove and boil down to about 1½ cupfuls. In the meantime cut the meat into very small pieces and put in mold; a bread pan will do; measure 1½ cups of the broth and add to it the gelatine which has been softened in 2 tablespoons of cold water, the vinegar and more salt, if necessary, pour over the meat and put in a cold place until firm, when it may be turned out on a platter and garnished with parsley. This is an economical and attractive meat loaf for picnics, church suppers, etc.

CORN CHOWDER.

1 cup corn
2 cups diced potatoes
1 onion
1 pint milk
3 tablespoons butter
3 tablespoons flour
salt and pepper
3 cups water

Dried corn may be used, in which case soak it over night before measuring and use the water in which it was soaked. Put the water and onion sliced thinly on to cook and when the onion is nearly done add the cooked potatoes and corn and cook five minutes longer. Make a white sauce of the butter, flour, and milk, blend with the other mixture, and season to taste with salt and a bit of pepper. Finely minced parsley may be added just before serving.

GOLDEN SHERBET.

1 qt. fresh milk
1 pint stewed apricots
1 cup canned shredded pineapple
1 cup honey

Either canned or dried apricots may be used. The latter should be soaked in water to cover several hours or over night and then stewed slowly until tender, and as they are not sweetened a little more honey may be needed. Put the apricots thru the food chopper and combine with the pineapple, using the juice of both. Add the cold milk slowly to the fruit, stirring constantly and freeze.

PEACH CREAM PIE.

1 pastry shell (baked)
peaches
¾ cup honey
1½ cups milk
2 tablespoons pulverized sugar
2 eggs
2 tablespoons water
5 tablespoons flour (level measurement)
1 tablespoon butter
⅛ teaspoon salt

Line the pastry shell with sliced peaches, heat the milk with the salt in the double boiler, reserving enough to mix the flour into a smooth paste for thickening; beat the egg yolks slightly, stir in the honey and pour the thickened milk over them, stirring until smooth, return to the double boiler and cook until it is a smooth, thick custard, add the butter and pour over the peaches in the pastry shell. When cool, cover with a meringue made of the egg whites beaten with the two tablespoons of water and sweetened with the sugar, and bake in a slow oven until set and delicately browned. The addition of the water makes the meringue much thicker and fluffier, especially if it is beaten with a wire whisk. The meringue may be flavored with a drop of almond.

Beekeeping as a Side Line

Grace Allen

METHODS of wintering differ widely, even among commercial producers, and still more among sideliners, who undoubtedly run the whole gamut from the best to the worst. You see, some people who keep bees as a sideline are so busy, so constantly busy with their own work that the bees receive but scant attention — sometimes none. Others, with a main work that leaves them considerable leisure, may spend most of it with their hobby in the back yard. In this class we naturally find some of our most skillful beekeepers. Individuality and personal bias probably show more strikingly among backlotters than among professionals. And in this matter of wintering, how we do differ, from doing nothing at all, not even attending properly to stores, to the most laborious and expensive methods of packing.

Midway between these two extremes stands Geo. Bowersox of Portland, Ind.. who says his method is a complete success — with him. He uses small, single-hive packing cases, with an air shaft from the entrance, which is reduced to ⅜ by 4 inches. I can't see, myself, much value to this air shaft, and wonder if he wouldn't have as good results without it. ''Get the bees in shape early, as to stores,'' he writes, ''and give them plenty of time to seal down the cover good and tight. It is my opinion the Lord aimed for them to have a tight sealed roof, or he wouldn't have made them quite so handy with the gluepot. Put newspapers on the hive, and crowd on outer cover. Set hive on platform, no packing under it at all. Put winter case down over all. Pack with hay or long grass. Put cover on and entrance block in place. Tip the whole outfit up four inches at the back. Don't fail in this. I think the tipping at back and the air shaft are the secret of the success. I wintered 100 per cent this year, as usual. I never lost a colony from wintering in my life. There are lots of things I have never seen, and two of them are moldy combs and dysentery.''

* * *

While we were working hard the Saturday afternoon before the State Fair, putting up our exhibit, there came strolling along a man with apparently nothing to do, but considerable to talk about. He drew up a chair, settled down and soon had a little group gathered into a sort of round table discussion of things in general. Bees were merely introductory. The story of his entire experience with them ran somewhat like this.

''A good many years ago, when I had a big farm in East Tennessee, a man came to me one spring and asked if he could put some bees on my place. 'Ask my wife,' I said, 'If she doesn't care, I don't.' Wife said it would be all right so's he didn't put them too near the house. So he put'em out the other side of the orchard. Well, I had a nigger'd worked for me for years, and pretty soon he began to kick about the bees. 'They sure is cross bees, Boss,' he said. 'Is they yours?' I told him no, they belonged to another fellow. He kept on kicking about them for a good bit, but after a while he quit. I never paid any attention to them myself, just managed not to go around where they were. Along in the summer sometime I asked the nigger if the bees had quit bothering him. 'Yes,' he said, 'they's right quiet now.' Sometime in July the owner came driving out. 'Did I get any honey?' he wanted to know. 'Blest if I know,' I told him. 'Go on out and see.' He went out, and he came back. 'Who killed all my bees?' he wanted to know, and he was good and mad. 'What you mean, who killed your bees?' I said back, right quick. 'There's not a live bee out there.' he said. And he was right about it. That rascal of a nigger had gone out there at night and packed the opening of every hive full of wet mud, and smothered every bee. I just couldn't help it, I had to laugh to think about it.''

There may have been a humorous angle to the incident, but needless to say our sympathies ran along a different line than our narrator's.

There were two hives of live bees in the apiary section at the Fair, one of them in our own exhibit. On Thursday evening, the superintendent of the Agriculture Department came to us to say that the Fair management was having a most embarrassing experience with the bees flying around the grounds, and wouldn't we please shut them up? The Chero-cola men and the cider men were the angry hosts of great swarms of them, he said, and declared they wouldn't pay for their concessions if the bees weren't called off so they could do a normal business; the women selling lunches complained that bees were eating all the meringue off the pies and frightening customers away, and people were getting stung and threatening to sue the Fair management. We replied that full colonies of bees were among the entries listed in their catalog, last year as well as this, that there were only Italian bees flying from the exhibits, whereas there were plenty of blacks and hybrids around the pies and cider, that there were only two hives being shown anyway (except the one-frame observation hives, which were closed), whereas about a mile away was one apiary of 20 colonies, and there probably were still others around, and that bees thought nothing of flying a mile or two. However, we shut them in, partly to show that they were not chiefly responsible, and also that the Fair management might assure complainants that they had done what they could, and that there were no bees flying from any exhibits. Friday and Saturday the bees were as thick as ever around the different eating and drinking stands. One excited man and one much worried pie-lady came to me Friday morning entreating me to whistle my bees home to their hive. Distressed tho I had been the night before over having to confine them for the next two days, it was really a satisfaction to be able to show my complaining visitors that not any of our bees, nor any in the entire apiarian exhibit, were flying.

They really were troublesome, tho. I felt particularly sorry for the little girl who was stung in the mouth, even tho she may have been eating her pie not daintily, but too fast. But no one felt much sympathy for the woman who stormed the office with the threat of a lawsuit because a bee stung her, or for the plump and healthy young girl who, because her stung hand swelled in a perfectly natural way into a thing of no beauty and some discomfort, called the family doctor the next morning and wore her hand in a bandage for still another day! But I don't think full hives of bees will be included among the entries next year.

We were particularly proud of the placing of that hive of bees, too. The fourteen-ounce bottles of honey—and all the honey in this section was very light and pretty this year — were ranged along on shelves across the windows at the back of the booth, with a clear, empty space in the center large enough to show easily the hive of bees placed just outside on a little platform that brought it to the right position. The hive was close to the window glass, and facing it, so that the entrance showed plainly, with the bees flying in and out (until Friday!), and it was a most pleasing feature of the exhibit. We had wished we might confine the exhibit to one hive and its product, but as it takes about 200 pounds of honey to make a creditable display, and our two highest records were 95 and 110 pounds, we exhibited one of these hives and the output of the two. On the front of the hive, where it faced the window, was a sign reading, ''This hive, and one other, produced all the honey shown in this exhibit.''

It certainly proved an interesting feature. ''Your beekeeping friends will laugh at you,'' warned Mr. Allen, ''if they think you're boasting about that yield.'' (It was his idea, by the way.) ''Let them laugh,'' I retorted. ''This exhibit's not for our beekeeping friends. It's for the general public. And the general public won't laugh, it will gasp.'' Gasp it did, too. ''All this honey?'' it cried, and called its wife and children to come look. Part of it, however, said ''Hm!'' skeptically and shook its head and walked away, unbelieving.

And still, as always, we pointed out the queens in the observation hives, and assured everyone that the round yellow cakes were not cheese, but beeswax, and that there was no such thing as artificial comb, and that ''the honey you buy at the stores'' is pure, and what they got once from Alabama was sweet clover honey and not glucose flavored with vanilla and cinnamon, and that beekeepers don't feed sugar to their bees to be made into honey.

* * *

How almost unbelievable it seems that Dr. Miller has gone. He was so alive. And so wholly our beloved leader. I shall never forget that day in Chicago when I met him. It will always be one of my great days. I was quite too stirred to speak, just held to his hand and said his name over two or three times and looked at him, while he himself said so sweet a thing in greeting that I have folded it away among my precious memories. He was just what I knew he must be—only more so—wise and witty and sweet-smiling and gentle-mannered and keen and old and young and winning and lovable. Dr. Phillips assured us later that Dr. Miller's was the youngest mind there. And now he has gone. Gone? We all know his own strong faith in a finer, nobler life to come. And even here on this earth, in the hearts and affectionate regard and reverent esteem of countless men, he will have achieved something akin to immortality. For over all this world, wherever men love bees and read books, his name is known and loved and will be passed down thru the ages.

* * *

IN MEMORIAM.

DR. C. C. MILLER.

How you would love this hour! The morning mist
All touched with gold and blue and amethyst,
Goes rising slowly, lost somehow in light.
And lo, the sun-tipped hills break into sight!
Does Death come so? Do tender earth-born things
And human love, however close it clings,
Dissolve at last and rise and pass away
And show great hills of light, and God, and Day!

The golden peace of autumn lies around.
You loved it, too, and most, perhaps, this sound
Of bees that hum, whose frail undaunted wings
Fill wondering souls with strange imaginings.
Is peace around you now, so great, so deep
That we who do not know it call it sleep!
Are wings there, too, God made of dream and fire
That leave ungarnered no divine desire!

Today this earthly beauty grips me so
I wonder what new radiance you know.
Such haunting music fills our quiet places—
What symphonies ring down unbounded spaces!
Not ours to ask—ours but to dream the dream,
Ours but to keep the high held torch agleam,
Ours but to walk in reverence and pride
Because you lived, and loved, and smiled, and died.

FROM NORTH, EAST, WEST AND SOUTH

In Southern California.—The return trip from our delightful outing in the mountains of Tuolumne County was made via the coast route. We motored the 550 miles toward our southern California home by easy stages. Along the way we were very forcibly impressed by the changes in the climate, the variety of crops, and the different sources from which honey might be obtained. From the higher altitudes of Tuolumne County where very little is found for the bee to work upon, we descended to the lower valleys where irrigation brings forth a variety of honey-producing plants, among them alfalfa, sweet clover, wild sunflower, and many weeds and vines. As we traveled farther toward the coast, we found the climate growing cooler. Willows were very abundant, and many beekeepers are quite dependent upon them. A very dark grade of honey, classed by the State Exchange as River Bank honey, is gathered in this section. It is sometimes called bug-juice by the native beekeeper. I understand it is not honey at all but a substance called honeydew, and is produced by an aphis. This honeydew sometimes continues to be produced until late in the fall. Queen-breeders find this an ideal place for late queens on account of the late flow.

A little farther south we found great black sage ranges together with fruit bloom, mustard, etc. Then a hundred miles or so farther on our way, we began to see the unirrigated bean fields which soon broaden out into the thousands of acres of Santa Barbara and Ventura counties. This has not proved to be one of our best bean-honey years, and many beekeepers felt that they were well paid if the hives were well filled for winter. These fields are backed, as it were, by the great purple sage ranges some 30 miles away in the hills. The season has not been good on these ranges and only a few have made a good crop this year. Another hundred miles brings us to the great irrigated bean fields of the San Fernando Valley of Los Angeles County. Here more honey has been produced, and some apiaries have done very well.

One very noticeable thing along our travels was the ever increasing number of "Honey for Sale" signs. More and more the beekeeper is beginning to realize that the more honey he can sell at retail, the more nearly he is getting what he should have for his product, and at the same time the use of honey in the home is being stimulated.

During a trip over half of the length of our State, the writer was surprised to notice that the places where a good crop of honey was secured are very "spotted." It so happened that our section was favored this year, and it is more than likely that other parts will be the ones to get the good crop next year. In some parts of the country the blue curl is very abundant and is yielding enough honey so that some might be extracted. In our immediate vicinity, it has given little or no honey. While it is considered a drought plant and grows in the grain fields after the crop has been taken off, yet it seems to be doing its best this year in those places where there were one or two good showers in July or August. I do not know whether all parts of the country have the increase in the bees that ours has, but there are something like 1100 colonies now on a fall range where there were formerly only about 300. This might not make any difference during a heavy honey flow, but it certainly has made a difference in the amount of honey put in for winter stores.

There is considerable activity in the buying of bees. Not many are being offered, but those that are, soon find a buyer if the price is at all reasonable. From twelve to fifteen dollars per colony for two-story Langstroth hives with stores enough for winter, is the general price.

The State Exchange quotes the prices of honey the same as those established in June, 17½ to 20 cents per pound, according to the grade of honey. The sales of honey in bulk have been light but satisfactory, while the package honey put up in 1-pound, 2-pound, 5-pound and 10-pound cans have found a very strong market.

Corona, Calif. L. L. Andrews.

* * *

In Pacific Northwest.—There are many newcomers almost daily looking for locations. Most of them seem to be fair and do not want to encroach on territory already occupied. Many good locations have been given up, owing to the difficulty of access. Some of the extensive tracts have been logged-off and the logging railroads dismantled, making it too great a hardship for those who at one time could utilize these roads and get supplies in and honey out for a small consideration. The most accessible locations are fairly well filled up, and one finds bees all thru the mountains where none were expected—not in large quantities, but from a few colonies to a few hundred.

1920 has more than ever demonstrated the value of queens, and while a few years ago a queen was considered good and sufficient if the colony gave a fair surplus in an 8-frame hive, such 8-frame queens now are not satisfactory. Those who know, want a 16 to a 20-frame queen. I still am firm in the belief that a good deal is charged up to delinquency of queens that rightfully may be the fault or carelessness of the owner.

Owing to the rapid spread of European foul brood the last two seasons, whole api-

FROM NORTH, EAST, WEST AND SOUTH

aries have been requeened and with more or less success. This does not say that foul brood has gone for keeps. I am inclined to doubt it and expect more or less recurrences; but I do know of individual instances of some few colonies remaining clean and immune thru the whole season, while 99 per cent of the apiaries were more or less infected, and this is the characteristic we want to perpetuate.

By the way, while on the subject of queens advertised, some describe and offer, ''Untested, select untested,'' etc., etc. I have had occasion to send for a goodly number at a time and to many queen-breeders—always to those advertising as untested. Some breeders on receipt of an order write back they have select untested only and will fill the order if the added price is remitted. Still their advertisement appears in bee journals offering untested. Some might construe this as a hold-up and blame the queen-breeder; and it seems to the writer that the breeders of queens cannot afford to send out any but good ones, and, if the brand of untested are inferior, they should advertise them as culls. In the last two years hundreds of untested queens have been bought, and most of them have proved good and some more than good. The best queen on the place one time was just a plain untested one. So much for select and graded, and I am wondering whether the big advertisers can put it over all the time. 25c advance—$25.00 when sending for a 100—many nice orders have gone to others that don't quibble; and not only that, when other beekeepers ask where you purchase, these breeders are not recommended or endorsed, but a warning sends the order to others. Our experience has been that southern-bred queens are in no way inferior to northern-bred. Purchasing over 300 this season and from many different breeders in different States, I find some strains do show more ''pep'' and ''get-up'' than others.

Portland, Ore. E. J. Ladd.

* * *

In Southern Indiana.

Since writing for this department in September Gleanings, a great change has come over the weather. Probably the sun turned the other side toward us and focused one of those ''spots'' on us. At any rate, after that hot dry spell that cooked all of our splendid bee weeds it began to rain. There was a nice little shower every night, and nice, clear days. How the smartweed did brace up in the cornfields, and the beautiful Spanish needles stretched themselves high above the wheat stubble. We had about begun to believe that the rain had counteracted the effects of the dry weather and that we would have a fine fall flow to fill the hives, but the rain did not seem to know when there was enough, for it continued to rain harder both day and night for the latter part of August and all of September. At last the rain stopped, but too late to save the honey crop, for the flowers were past their nectar-secreting stage. Nothing is left but asters, and the bees must be doing quite a business on them, judging by the smell that permeates the atmosphere for a good distance around the apiary.

Colonies that had large brood-nests have abundance of stores left over from the sweet-clover flow. The colonies with small brood-nests, especially those run for extracted honey, are short of stores and must either be fed or will starve.

The demand for honey seems to be good. Extracted honey sells readily at 30c per pound and comb honey at 40c per section.

Owing to the efficient inspection service, foul brood is being eradicated in many localities. Beekeepers' clubs are increasing in number; auto tours by the inspectors and education among the beekeepers are doing much to stamp out bee disease and prevent its spread to new localities. The heavy rains have made the clover come on in fine style, and at present the prospect looks good for a crop from alsike and white clover; still, it is mighty risky guessing on a honey crop a year ahead.

Vincennes, Ind. Jay Smith.

* * *

In North Carolina.

The season for honey production in Eastern Carolina has been very satisfactory for nearly every beekeeper, especially those who are using standard hives and are giving their bees anything like a reasonable amount of attention. The reports from the western section of the State where the sourwood and the poplar are the main dependence indicate very good results. So that North Carolina may be said to have realized a very fair crop of honey, with the bees generally reported as in satisfactory condition for the coming winter.

Wintering in this State is altogether an out-of-doors problem — no basement storage. However, winter packing is coming more and more into favor, with a view to helping the bees to a decidedly stronger condition in the early spring in preparation for handling the earliest honey flows. Very few beekeepers pack all their hives as yet; but more and more of them are packing many of their hives.

This year's product of honey has been especially choice where it has been produced in standard hives and handled with extractors and other latest appliances, and the tints and the flavors are of the finest. Eighteen to twenty cents per pound seem to be the prevailing prices where the beekeeper sells his crop in bulk, and relatively

FROM NORTH, EAST, WEST AND SOUTH

higher prices are being obtained where the sales are in small lots and special packages to dealers or consumers. The gum and box-hive beekeepers are getting only 12½ cents per pound for their "squeezed" honey, and their realization of this big difference in the market value of their product is helping mightily to quicken serious thought on the necessity of getting the bees into standard hives and giving them proper attention.

The gum and box-hive beekeepers had another "food for thought" coming to them this summer in the fact that the late August scorching sun melted down many combs, entailing not only the loss of bees and much honey, but endangering entire apiaries thru consequent robbing. At the same time there were apiaries with standard hives that took the hot sun with perfect safety—this in spite of the fact that the standard hives would be right out in the open without shade and the gums and box-hives in neighboring beenyards had board shelters or other extra covering.

Announcement is made in Gleanings that honey is proved to possess that elusive and most vitalizing property, vitamines — the growth principle—thereby adding yet another powerful claim that honey has for place on every well-balanced as well as bountifully supplied dining table in the country. This greatly enthuses the North Carolina beekeepers and stirs them to extra effort to get their delicious product more generally and more forcibly before the public as a real food necessity, as well as a most appetizing and healthful sweet.

The most general preparations for exhibits of bees and honey are under way for the State fair at Raleigh, and many of the county and district fairs are coming in for special displays that are accorded premiums and special prizes.

Wilmington, N. C. W. J. Martin.

* * *

In Ontario. A busy season is fast drawing to a close and beekeepers see a breathing space ahead in near future, for apiary work in our part of the country is pretty well over by November 1. Personally we have had the busiest season we have ever experienced, not necessarily because of very large crops, but more bees were handled than in other seasons, and the lateness of crop also crowded things quite lively in an effort to get whiter honey off before buckwheat yielded. Each season has its peculiarities and the past one was no exception. Alsike has always been our main source in the home section, but this year, like last season, it yielded little nectar. When hopes were about abandoned for a crop of white honey, sweet clover, grown for first time in quantities around our apiaries in the home section, yielded very bounteously—in fact, at two yards we got record crops so far as our past experience is concerned. Buckwheat later was a failure, but red clover gave us the first real surplus we have ever had from that source. Then again, at five yards southeast of Hamilton where alsike is also grown in abundance and is the main source of honey, here as at the home yards it yielded little honey and things looked bad indeed for a while. But for the first time in our experience, alfalfa gave us a surplus of about 60 pounds per colony. Surely, as I have often claimed, beekeeping is a gamble all right. From general reports from over the Province, I am inclined to believe that the crop is much better than we thought at close of flow, as many localities where clover failed secured a nice surplus from basswood later on. Prices seem to have a downward tendency, largely caused by quite heavy importations of New Zealand honey, which is being laid down at a price much lower than our product was bringing. Then again, there is that feeling that "anything may happen," and dealers are very loath to buy large supplies even at prices they are willing to pay for small lots. As a consequence, very few have disposed of the bulk of their crop, at date of writing. Buckwheat is particularly slow of sale at this writing, many dealers refusing to quote at all.

As to the sweet clover situation, hundreds of acres are sown all around us here in York and Ontario counties for another season; but, owing to a great slump in sweet clover seed prices, it is doubtful as to what will be done with present acreage. Some predict that most of it will be either plowed under or used for pasture next summer, and in either case it does not look as tho the bees will profit much from it another year. Possibly we have had our first and last crop of sweet clover honey. As to quality, I for one do not like it nearly as well as real good alsike or white clover, but many fortunately do not agree with my taste and think it is fine. Anyway we thought it fine this year when alsike failed, as it stepped in and so generously filled up the supers for us.

It is announced that the Ontario Beekeepers' Association will hold the annual meeting at Guelph late in the year. This will be the first time for many years that it has not been held in Toronto. The opening of the new apicultural building at the Agricultural College is the announced excuse for changing the place of meeting. What comment I have heard so far from beekeepers is not very favorable to change, as fear is expressed that the hotel accommodations will not be adequate. But, no doubt, Sec. Millen will do his best to see that such fears are unfounded.

Markham, Ont. J. L. Byer.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Four Colonies from One Bee Tree. From about the first of the year I stimulated lightly a colony of bees in a bee-tree; and, by observing closely, I timed quite accurately the cutting of the large spruce tree before the bees were ready to swarm. When the tree fell the combs collapsed, and the honey poured from the knot-hole entrance and ran down thru the marsh grass some 10 feet into the salt water of the Pacific. Upon opening the tree I found a large cavity which was full of bees, comb, and honey. I obtained about 40 pounds of honey and several frames of comb containing queen-cells and brood in all stages, and enough bees for four 8-frame hives.

I gave the mother queen to one, an Italian to another, and to the other two the brood from which they drew 56 perfect queen-cells, there being 30 good ones on a single comb. I put in division-boards and put on excluders and supers of drawn combs. I also made a brooder for the queen-cells, and by dividing and grafting I obtained queens galore. Immediately after getting my bees I was offered $10 per colony. Perhaps I did not proceed in an exactly orthodox way, but I made it work just the same.

Raymond, Wash. M. C. Osborne.

* * *

Bees Kept in Town for Twenty Years. I keep my bees right in the village of Dolgeville on the bank of the East Canada Creek. I have kept my bees there for the last 18 or 20 years without any trouble to anyone. I have an up-to-date outfit. In fact, I have to have such, for I have been in the meat-market business for the last 20 or 22 years and keep the bees as a sideline, and, therefore, don't have much time to spend on them. So I find an up-to-date equipment very important. R. C. Ortlieb.

Dolgeville, N. Y.

* * *

A Queen Travels for 65 Days. In a letter received from Arcadio Davalos, Zamora, Michoacan, Mexico, under date of Sept. 23, is the following:

"Only three days ago I received the two Italian queens which you sent me on July 17. One arrived alive, at which I was greatly astonished."

These queens were sent by mail in the ordinary Benton cage, and were 65 days in transit. Going as they did thru the most tropical part of this continent, and at the hottest time of the year, I consider this a most remarkable record.

Medina, Ohio. M. T. Pritchard.

* * *

Advocates Pearson Method Swarm Control. The Pearson method of using shallow frames with foundation starters under the brood-chamber for swarm prevention (June Gleanings, 1919) seemed so reasonable I decided last spring to give it a trial. I arranged seven hives according to directions, and the re-

Mr. Ortlieb's town apiary.

sults have been very satisfactory. Two swarms came from one hive, but not any from the other six. This one hive was not fitted with a super above and below as early as the others, not indeed until burr combs appeared on top of the brood-frames. No work was done by the bees in the shallow frames, with a single exception; this was filled with heavy drone-comb with a very little honey. These combs instead of being parallel with the frames ran diagonally with them. The total amount of honey was very much greater than ever before. I shall continue the same method next season. Robert Forsyth.

Claremont, New Hampshire.

* * *

Supersedure of Apparently Good Queen.

Early in the spring I found two queens in one hive. One had a wing clipped, and the other not. Of course I thought (and I believe correctly) that the one with wings had got lost from another hive. So I hunted until I found a queenless hive and took the clipped queen and introduced her into it. Soon after she had a supersedure cell started. Thinking it proper, I left the queen-cell to hatch. A fine young queen came forth and later began laying, and still the old queen kept right on with her business.

About Aug. 3 I raised the brood to a third super and put the young queen in the upper super with a queen-excluder between. In about three weeks, when I had actually forgotten about it, I happened to be overhauling the hive and found the queen above, laying as nicely as you please, and below I found the old queen laying finely but with a virgin queen for company. Really I have a very tender feeling for this queen and wish we might reproduce a breed like her.

Crane, Mont. Myron Pickering.

[Quite likely the queen with clipped wings was being superseded at the time of your first observation in the spring. —Editor.]

* * *

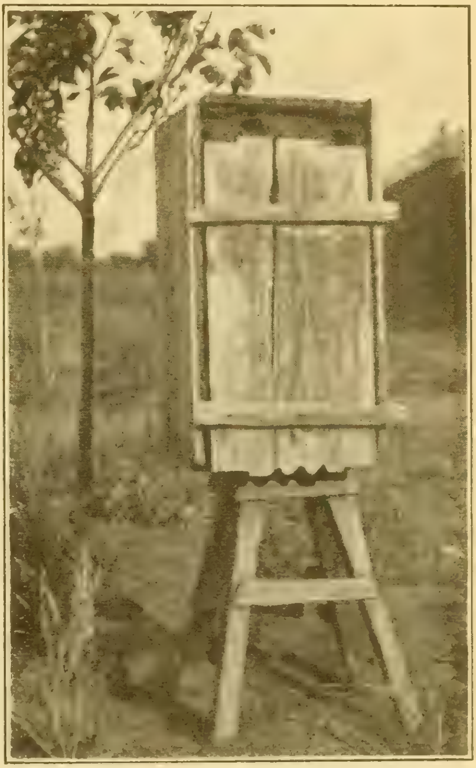
Several Uses For Propolis.

Propolis, altho not of great importance, nevertheless has its place in the economy of the hive. Especially in the box hive, or in the natural dwelling-places of bees, it is an ideal material for closing cracks, and has the great advantage over wax in that it does not shelter the wax moth. Moreover, propolis is often used by the bees to fasten the naturally built combs, which certainly is a proof that it adds to the solidity of the comb.

One winter I bought a box hive which had previously had a 2 by 11½-inch space across the front. This the bees had closed completely with a solid sheet of propolis. Later on in the spring they apparently wanted more ventilation, for they made three holes in that propolis wall, as shown in the illustration.

On the whole, most beekeepers consider propolis as a nuisance, and, indeed, little use can be made of it. As grafting wax, however, this material gave me quite satisfactory results. Adding some tallow might improve it for this purpose.

Propolis has also been used with success in the treatment of corns. After taking a warm footbath, some warm propolis is placed on the corn and covered with a small piece of cloth and left over night. This has to be repeated several times till the corn comes off.



Bees make a propolis wall.

A propolis soap is offered for sale which is beneficial for the skin on account of the medicinal properties of propolis.

Sometimes propolis is also used as a household remedy, and applied on abscesses and ulcerous wounds. Even the Roman writer Varro reports that propolis was often sold on the honey market in ancient Rome at a higher price than honey, on account of its healing properties.

Buenos Aires. Ernest Tschudin.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Best Time for Organizing Counties. An exhibit of beekeepers' products and supplies at a fair is no remarkable event, but the outstanding feature here was the difference between this year's display which filled a good-sized booth and held the interest thruout the week (Sept. 13 to 17), and the display of only a small showing of honey and supplies in previous years. This gain is due to the beekeepers' county organization, which is a little less than a year old. From an exhibit of only two or three entries in the past it jumped this year to about a dozen entries, and the competition was very keen and interesting.

The large exhibit was a surprise to the Fair association, and therefore it was not prepared to give us judges who were experienced in judging honey in the most approved and up-to-date methods; but I doubt if any method used, from laboratory tests to judging from taste and color, could have been other than confusing to the best of judges, as out of nine entries in light spring extracted honey, no difference could be distinguished in color and flavor. Right here I want to tell you how the first and second prizes were awarded. The judges, after several trials at tasting and comparison of color, were very much confused as to where to place the awards, when at this moment a fly, alighting on a small quantity of honey poured out on paper from each jar of honey, insisted on alighting on the same drop of honey after several attempts at driving it away. This recalled to mind the story of the wisdom of Solomon and the test placed before him by the Queen of Sheba; so the judges agreed to give the first award to the entry of this particular jar of honey, and the second prize to the honey on which the fly next alighted. This way of awarding the premiums, while a little out of the ordinary, was nevertheless satisfactory to all concerned. Our association having been organized last fall after most of the orders for spring supplies had been placed, we thought it useless to try collective buying until this fall; but, after sending out to all the members a letter giving a price list and about the amount of discount they could expect, we placed over-a-thousand-dollar order, and saved two hundred dollars for our members.

In just one year's time, the advertising we have received, thru the daily paper in the way of write-ups regarding county meetings and field demonstrations by the State Apiarist, and now the big Fair exhibit have started people in this locality to talking honey, and the result can be nothing but a benefit to all concerned. "A word to the wise is sufficient," to wit, if you have no county organization, **now** is the best time to start one.

Marshalltown, Iowa. N. A. Talbot.

Marshall County Bee Keepers

A honey exhibit that helped bee keeping in Marshall County, Ia.

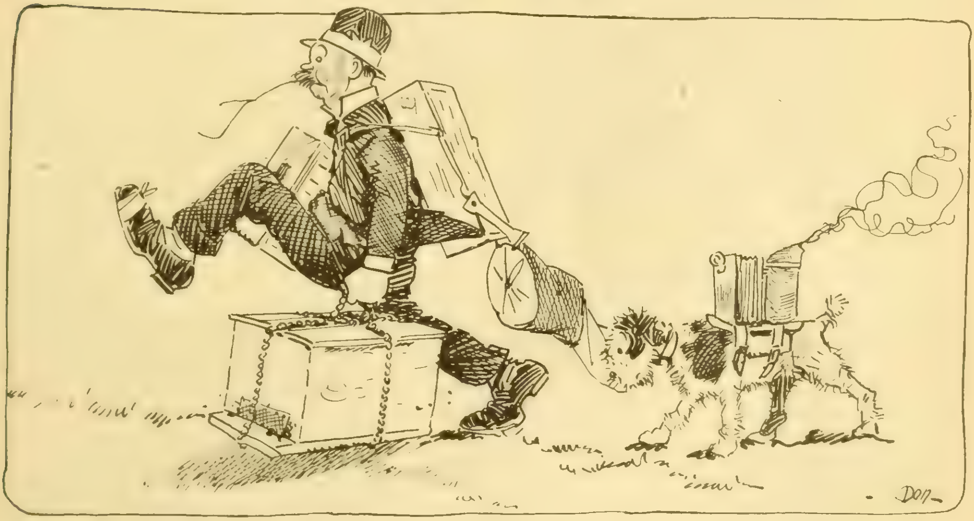
HEADS OF GRAIN FROM DIFFERENT FIELDS

Why Not a Good Idea? I approve a bottom-board whose floorboard slants downward from the back to the front. The foundation walls are ⅛ inch deeper than the Root verticals. The floor boards are ¾ inch instead of ⅞. The grooves are cut in the side walls at such an angle that the clearance at the back of the board is ⅜ inch, and at the front 1¼. This drop of ⅞ is sufficient to carry away all moisture. In packing bees for winter in quadruple cases it is desirable to have the hives fit snugly back to back. It is also desirable to have the floor boards slant sufficiently to drain away the condensation within the hives. Both of these desirable conditions can not be met with the floor boards now on the market. Hives on their summer stands must be tilted forward to drain away moisture during heavy rains. Hives which are out of vertical, either way, present an appearance which is not so pleasing to the eye as when set with their lines horizontal and perpendicular. So, this bottom-board.

Columbus, O. F. B. Moore.

Locations.—By Bill Mellvir

(With Apologies to Walt Mason.)



I travel east, I travel west, to find locations that are best; but everywhere I try my luck it seems the flowers all have struck. I travel north, I travel south, but beemen talk of floods and drouth; of weather bum and flowers in bloom with nothing in them but perfume. In irrigation's early days I got the Colorado craze; but insects came to eat the bloom, which busted up my Pike's Peak boom. I took my bees to Idaho where acres of alfalfa grow, but others thought I had a snap and crowded me clear off the map. I moved to Yakima from there and found beekeepers in despair, for beemen by the score had heard that this location is a bird. A beeyard every half a mile has come to be the western style; so each beekeeper has a gun to keep infringers on the run. I then tried California sage where big crops once were all the rage; but seasons dry came thick and fast, which put me on the blink at last. Imperial Valley tempted me below the level of the sea, but there the sun's fierce burning rays soon cured me of the desert craze. I settled in the Lone Star State to gather sweets from horsemint great, but natives talked of seasons bum and said, "the worst is yet to come." In Florida the tupelo looked like the stuff to make the dough; but, say, I am a prudent skate and I know when to pull my freight. I came back home where clovers grow, where winters reek with ice and snow, where rains or drouth in summer time make this the punkest kind of clime. I search in vain for climates grand where beastly weather has been canned; where flowers are spilling grub for bees, and silver bones grow on the trees. I travel up, I travel down, but come right back to my old town, for each location on the map has some unpleasant thing on tap.

JUST NEWS

Editors

THE members of the executive committee and friends of the American Honey Producers' League will hold a conference at the Great Northern Hotel, Chicago, on Dec. 6 and 7. A very full attendance of the friends and those interested in the welfare of the League is hoped for.

* * *

The 40th annual convention of the Ontario Beekeepers' Association will be held at the Ontario Agricultural College at Guelph on Dec. 1, 2, and 3, 1920. At this convention the new apicultural building will be formally opened, which is the finest apicultural building in North America. The secretary, F. Eric Millen, whose address is Ontario Agricultural College, Guelph, Ont., is arranging a remarkably fine program on which will appear the names of some of the most prominent beekeepers of the United States and Canada. The members of the Association will be able to secure accommodations at reasonable rates, and a list of rooms will be on file for the members' convenience. A banquet will be one of the features of the convention. Programs will be mailed to members in November.

* * *

The annual meeting of New York State beekeepers will be held in Syracuse on Dec. 1, 2, and 3. Details and information can be secured of the Secretary, John H. Cunningham, 303 University Place, Syracuse, N. Y.

* * *

The Chicago North-Western Beekeepers' Association will hold its annual convention on Monday and Tuesday, Dec. 6 and 7, at the Great Northern Hotel, Chicago. An excellent program is promised, a copy of which will be mailed upon application to the secretary, J. C. Bull, 1013 Calumet Ave., Valparaiso, Ind.

* * *

The annual fall meeting of the Western New York Honey Producers' Association will be held in Buffalo, N. Y., at the Genesee Hotel, on Nov. 9 and 10. All interested in beekeeping or honey are cordially invited to attend. J. Roy Lincoln, Pembroke, N. Y., is secretary, and will furnish information.

* * *

The amounts of the cash premiums offered at the various state fairs this fall give some indication of the beekeeping industry in the several States. Wisconsin led with a total amount of premiums of $1153; Minnesota was second with a total of $1110. The premiums offered at other state fairs were as follows: Connecticut, $489; Colorado, $314; Arizona, $196; Illinois, $589; Iowa, $497; Kansas, $363; West Michigan State Fair, $595; Nebraska, $447; New York, $394; Oklahoma Free State Fair, $437; Tennessee, $301; Texas, $423; Southeastern Fair at Atlanta, Ga., $300; Washington, $250; North Carolina, $153; North Dakota, $165; Missouri, $151; Indiana, $169; South Dakota, $144; Oregon, $129; and others with smaller premiums. Ohio and Michigan made exhibits on the co-operative plan under direction of the state associations of beekeepers, the honey on exhibit being supplied by beekeepers in these States and sold at the fair, the net returns for such sales going to the beekeepers who furnished the honey for the exhibit.

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Bees Versus Smelters Again.

Our older readers will remember that a case came up between the beekeepers on one side and the big smelter companies on the other side, in the Salt Lake Valley, Utah. Bees were killed by the poisonous gases by the tens of thousands. Apparently the smelter companies, rather than bring the case to trial, settled with the beekeepers in the sum of $50,000, which sum was probably divided pro rata according to the number of colonies that the beekeepers originally held. A case like it was tried in Ontario, Canada. In this case the beekeepers made a claim for $30,000 damages. The case came to trial; and while the judge himself believed that the smelter caused the death of the bees he rendered a verdict for the defendant, the smelter companies, because, he said, the beekeepers had not clearly proved their case. This was in the fall of 1916.

Still another case of a similar character is about to be tried in Arizona. Beekeepers in and near Verde have suffered heavy damages. Both sides are prepared for a great legal struggle. As the matter now stands, it means the ruination of the beekeeping industry covering a considerable area, or the payment of heavy damages on the part of the smelter companies, with the probable requirement of putting in expensive apparatus to control the gases so they may not destroy every living thing in the way of vegetation and bees within range of the great stacks. Any beekeepers living near big smelters anywhere in the United States, and who have suffered damage, are requested to communicate with W. E. Woodruff, Verde, Ariz. This case will doubtless establish a precedent whichever way it goes, and the beekeepers are interested that the case shall not go against them. The trial will probably come off the latter part of November or the first of December, and so Mr. Woodruff should be communicated with at once. Tell him what you know and he will send you blanks for your deposition.

GLEANED BY ASKING

Iona Fowls

Questions.—(1) What is the value of drawn comb expressed in terms of extracted honey? (2) In an article in July Gleanings, Wesley Foster thought the queen-excluder induced swarming, and so he gives his queens the run of every story. Please criticise this as applied to the amateur beekeeper. (3) Would you prefer some modification of this, as, for example, one and one-half or two stories for the queen; or lifting brood and keeping the queen down? (4) A sideline beekeeper with 15 colonies keeps down swarming by lifting three or four frames of brood in May (when the colony has about five frames of brood), leaving one frame of brood and the queen below the excluder, and cutting out the queen-cells if started, the upper story becoming a super after the brood is hatched. He says he has not had a swarm in three years. I plan to try this next season. Have you any suggestions?

Ohio. Frank E. Burgess.

Answers.—(1) We are quite unable to express the value of drawn comb in terms of extracted honey. As you probably know, the amount of honey required to produce a pound of wax has never been definitely ascertained. It has been estimated at from five to fifteen pounds. (2) When one has as many colonies to manage as has Wesley Foster it is necessary to use short-cut methods that would not be advisable in the case of a small beekeeper It is impossible for one to allow the queen to raise brood in any part of the hive she chooses, and yet get as fine a grade of honey as he would get by the use of excluders. One who has but a few colonies of bees will naturally take pride in producing the very best grade of honey possible. To do this he will need queen-excluders in case he produces extracted honey. In case he produces comb honey, excluders are not as necessary, because the supers contain foundation instead of comb. The queen will have no inducement to go above when foundation is used. (3) The use of two stories or one and one-half stories for the queen, or raising brood and keeping the queen below are found to be quite satisfactory in many locations. We feel certain that in your locality you will not find that it pays to let the queen have access to two stories thruout the season. Whenever we have tried this it has resulted in a smaller crop of honey for those colonies. The queen should be put down into the lower story at or just after the beginning of the flow. (4) The plan you suggest, you will probably like, provided the colony is strong enough so that there is no danger of the frames of brood in the lower story chilling.

FEEDING SYRUP.

Questions.—(1) In September issue, page 555, under "How to Feed Syrup," it occurs to me a much better plan is this: Remove outer cover leaving inner cover on. Now remove the small block from the inner cover which covers opening for bee-escape, placing inverted bucket containing syrup over hole thus made in the inner cover. (2) I enclose a small box lid, containing two holes punched each way. Which is right? Should the rough edge of the hole be on the inner or outer side of lid?

North Carolina. O. C. Wall.

Answers.—(1) In regard to feeding syrup we have used your plan of inverting a pail of syrup over the hole in the inner cover, and find that if one is careful it will work all right. The only reason we did not mention it in this department is because we have seen the plan in operation when syrup was pouring down the outside of the hive, having overflowed the inner cover. At the time we saw this the robber bees were hard at work and making quite a commotion. For a careful person, however, the plan is all right and we ourselves would not hesitate to feed in this way. (2) We always have the rough edges inside the lid. If the bees do not take the syrup rapidly enough, however, and a slight crust of syrup granulates over the hole, the bees could probably remove it more readily if the rough side were next the bees.

HONEY—PRICE, SWEETNESS, AND USE IN RECIPES.

Questions.—(1) Is it possible to use honey instead of sugar in making preserves, jellies, puddings, cakes, cookies, pies, candy, ice cream, root beer, etc.? (2) Have the different kinds of honeys the same degree of sweetness? (3) Also, why should light honey cost more than dark-colored honey?

Massachusetts. H. T. McMan[illegible]us.

Answers.—Yes, honey may be used instead of sugar in many recipes, but it is often necessary to vary the recipe when using honey. For instance, when substituting honey for molasses, less soda will be needed. Also, some recipes are improved by using a pinch of baking powder if honey is used. Then too, the fact that honey is a liquid makes it necessary to use a smaller amount of other liquids in recipes where honey is substituted for sugar. For each cupful of honey one-fifth cupful less of milk or other liquid should be used, as a cupful of honey contains about one-fifth cupful of water. (2) It is quite impossible for one to describe different kinds of honey in regard to their sweetness. Certain flavors appeal to some individuals as being sweeter than others, where a chemical analysis would show no difference in this respect. Usually highly flavored honeys are mistakenly believed to be sweeter than those of more mild flavor. (3) Light honey usually has a more delicate flavor and is more pleasing in appearance. For this reason it is in greater demand and brings a higher price on the market. It is a little more difficult to produce a light honey, for care must be taken not to allow the bees to mix with it a poorer grade from some other source.

DANGER OF DRIFTING.

Question.—If I set 10 hives one against the other in a bee shed and pack fronts and backs with four inches of shavings, what will be the effect when they come for a flight? Will drifting be too injurious?

Pennsylvania. W. H. Hattwick.

Answer.—There is always a chance that bees may drift when the colonies are placed closely beside each other; but, if they are left in this position thruout the year, of course, there would be less danger of drifting. As you probably know, when colonies are moved a short distance many of the old bees are apt to return to the old location and be lost; so, if you place them in the shed as you are planning, it would be necessary to wait until they have stopped flying in the fall, and then move them at some time when it seems likely that they will not be able to fly for several weeks. If you do not wish to wait as long as this, it would be possible to move the bees to some place a few miles away and leave them for a few weeks until they have forgotten their old location, and then move them into the shed.

WINTERING IN THE BARN.

Question.—I have 20 colonies of bees, and would like to know if I could winter them in the upstairs of my barn. It is 20 x 24 feet, formerly a hayloft, with board floor. It has two windows in the gables.

New York. A. W. Cerfort.

Answer.—It would be possible to winter the colonies in the barn if each colony is provided with a separate outside entrance; but, of course, you would still want some packing for the hive, and the hives should not face towards the prevailing winds.

WHY MOTHS ENTERED SUPERS.

Question.—I think in a late Gleanings you have been discussing gas for killing moths in combs. Moths were very bad here last year and the year before. I put out some combs three days for the bees to clean, and a few days later they were full of worms. I put them over an empty super and burned sulphur under them. That fixed the smallest and the greatest for all time.

Iowa. H. L. Kerber.

Answer.—Yes, we have also used sulphur with success. Your mistake in getting the combs cleaned was in leaving them outdoors so long. If they were put out in the morning the bees would have them cleaned by night, at which time they should be taken in and piled carefully in piles so that no moths can get in. You see if such combs are left out in the evening they are just about certain to be infested with moths, for the moths fly in the evening and readily detecting the odor of the honey enter the supers and there lay their eggs in the combs. Such combs should never be left out except during the day.

NEW FOUL BROOD TREATMENT

Question.—On page 533, September Gleanings, Mr. Jones says, in giving his new American foul brood treatment, "Leave the top and sides open and the bees will go across." Now, what meaning is intended to be conveyed in those words? Does it mean top and sides of the old or new hive, or does it mean both? Or, does it mean both of the hives must be knocked to pieces, the sides left out as well as the top, or tops, and that only the ends and bottoms of the hives are left to hold the frames? This "top and sides open" expression is puzzling. How does he "slide the cover forward" a little if the top is left open?

California. A. Norton.

Answer.—We quite agree with you that the statement is not very clear. Mr. Jones evidently meant that the space between the two hives is not to be screened in, but that the bees would simply walk across from one hive to the other without very many of them taking wing. The hives themselves are to be left covered, except that the old hive has the cover slipped forward about an inch.

STRONG COLONIES. QUEEN SEEN LAYING IN QUEEN-CELL. STRANGE LOSS OF QUEENS.

Questions.—(1) What is considered the most important thing one must work for in honey production? What should be the aim of a beekeeper who runs a few colonies as a side line and expects to make increase as he advances in his work? (2) In answer to question on page 486 of Gleanings you say you have never seen a queen deposit an egg in a queen-cell, and you do not know of anyone who has. I have seen a queen deposit eggs in queen-cells. It happened during the June flow that one of my colonies was getting lazy, so I decided to look in the hive. I found the workers busy constructing queen-cells. I found the queen walking on the comb. Then she came to a queen-cell in the end of the comb. She took a look in and turned to go. There was such a mass of workers around her she could not get out. She tried to push her way out, but each time the workers seemed to be urging her back. Then she took another look into the queen-cell and backed in and deposited an egg. Then the workers backed out of her way. She came to another cell, and the same act took place. After she left this cell I noticed that there were two eggs deposited in it. I closed the hive until the next noon. Then I found an egg in every queen-cell. They had a good many cells constructed. From this I believe when eggs are found in queen-cells that they are placed there by the queen. I, however, think that the workers have a strong influence on the queen, that has a good deal to do with her behavior. (3) When making increase I found that many queens that had emerged from ripe cells given in cell-protectors to colonies at the time they were made queenless, had later disappeared after being mated and laying a week or more. These queens were reared during the June flow in a strong colony and under favorable conditions. I cannot understand this. Have you any information on this matter?

Illinois. Ernest W. Peterson.

Answers.—(1) It is rather difficult to name any one thing more important than all other factors, and, yet, keeping the colony always strong is perhaps as important as any. For one who is expecting to make continual increase our best advice would be to become as well posted as possible on bee behavior under different conditions. He should, if possible, visit neighboring beekeepers and work side by side with them in the apiary, and also should read the best literature on beekeeping. (2) We were indeed glad to have your report of actually seeing a queen depositing eggs in the queen-cells. You are the second person who has made such a report since the question first appeared in Gleanings. (3) This is quite unusual and we are at a loss to explain why those young queens died after they had become mated and began laying. However, if several weeks had elapsed, it is possible that the queens were lost when they left the hive to be mated, and that the eggs you saw in the combs were not laid by this queen but rather by laying workers that developed after the bees realized the loss of their queen. Of course, if those eggs developed into workers, this theory would have to be discarded.

WORKER SEALED IN QUEEN-CELL.

Question.—Noting a queen-cell that was slightly indented and old I cut it open with my penknife, and inside there was a fully developed queen, of normal size for a good queen, but dead; and alongside of her there was a little worker, about half-sized, with wings, legs, etc., fully developed except in size, also dead. One of our best inspectors, Alex Keir, a man well posted on bees, was with me and I called his attention to it and afterwards threw the bee away. Since then I regretted doing so, as it opens up several questions to me. Was it ever noted before? And what about the royal jelly which we are taught is the only medium by which a worker egg is changed to a queen larva? Both queen and worker were apparently fed on the same food, but one remained a worker while the other was a queen. I'm on the doubtful bench about the royal jelly's being the only agent in producing a queen and leave it to the experts to explain. You may think I am a bit wobbly in this statement about the two bees in the same cell, but I will assure you I am not. Besides, I have the evidence of both Mr. Keir and Mr. O'Brien, the owner of the bees, that the facts are as I have stated.

British Columbia. W. H. Lewis.

Answer.—Are you quite certain that the bee was reared in the cell with the queen? It seems quite likely that a bee entered the cell and was accidentally sealed in by the bees. We have often seen bees accidentally shut in cells in this way and wonder if this may not possibly be the explanation. Such a bee would naturally appear undersized.

SAFE TEMPERATURE WHEN HANDLING BROOD. SIZE OF ENTRANCE.

Questions.—(1) I am often in a quandary about exposing brood when examination requires a temperature of below 80 degrees, which Gleanings once stated to be the required temperature. Could you not give me some further details of value? (2) I am undecided about the size of entrance to give in early fall or when the entrance should first be contracted with the coming of cool weather. What would you advise?

Virginia. J. T. Satterwhite.

Answer. — (1) The person who advised that combs of brood should not be handled when the temperature is below 80 degrees was, no doubt, trying to give very safe advice for beginners. However, many good beekeepers would not hesitate to open a hive when the temperature was 60 degrees F.; but, of course, they would not leave the brood exposed. They would simply remove one frame, examine it, then replace it before taking another frame from the hive. In this way the brood would always be covered with bees and would, therefore, be much warmer than the outside temperature. But we would not advise the beginner to take chances on handling brood when the temperature is as low as this. If there is no wind stirring it would probably be safe to handle the combs of brood when the temperature is 65 degrees F., if no comb is left outside of the hive for more than 10 seconds. (2) When it gets a little cool the entrance should be contracted to an opening ⅜ by 5 or 6 inches until time for packing for winter. Then a still smaller entrance may be given, ⅜ by 2 or 3 inches, or smaller. The main idea is to contract the entrance in the early fall to a size such as will keep the brood warm without making the bees so uncomfortable that they are obliged to cluster outside.

GRANULATED HONEY AND POLLEN FOR WINTER.

Questions.—(1) Will uncapped honey sugar in the hive over winter? If bees are wintered indoors, won't they use such honey even if it is sugared? (2) What can I do with combs that are full of pollen so they look more like a piece of board than a honeycomb? Would it be wise to take them out in the fall and put in combs of honey?

Minnesota. F. A. Olson.

Answers.—(1) Usually uncapped honey is used by the bees before it has time to granulate. There is, however, a great difference in the rapidity with which various honeys granulate. Granulated honey should never be given the bees for winter stores, but should be reserved until spring. The bees will then be able to obtain plenty of water which is necessary in order to convert the granulated honey to a liquid form. (2) In many localities such combs are valuable for use in the spring if there is a scarcity of fresh pollen. Combs that are completely filled with pollen ought to be removed from the hives and replaced with frames of honey for winter. When such combs are found earlier while it is still quite warm, the pollen may easily be removed by taking the curved end of the tool and digging into the mass of pollen until you reach the midrib. Then simply peel off the comb and pollen. After a little experience you will find that you can easily peel the side of the comb like this in a very short time. If the comb is then put in the hive when there is still a honey flow on, the bees will rapidly build out comb to take the place of the cells removed. After they have built it out in this way the comb may be turned and the opposite side treated in this same manner. One contributor to Gleanings recently reported soaking such combs for a day or so in water. He said that he could then shake out quite a little of the pollen, and that when placed in the hives the bees would remove the remainder.

LIZARDS EAT BEES

Question.—Kindly let me know if red or green lizards are enemies of bees. I went out one morning early just at break of day to the hives and noticed a bee on the front of one hive, and just above it was a green lizard intently watching the bee. I killed the lizard, fearing it would get away. I have killed about a dozen this spring on the hives.

North Carolina. J. E. Turner.

Answer.—Lizards do eat bees, and sometimes are quite troublesome about the apiary. If you had opened this lizard, you would likely have found the bodies of dead bees within.

DIVIDING INTO NUCLEI FOR WINTER.

Question.—What advice could you give me on the following plan of manipulations of the "Long Idea Hive"?

During the late flow of honey in the fall an ordinary swarm of bees is placed in the "Long Idea Hive," which is divided by means of close-fitting frames covered on each side by wire screen or sheet queen-excluder, making a double excluder or screen on each frame. Two such screens are provided, dividing the hive into three parts. In each part is placed a queen which has just started to lay, thus making three colonies in one, each having honey sufficient to last until the clover bloom the following spring. At the approach of spring the three queens begin laying (and due to the heat of so many bees in a one-story double-walled hive this would begin early), and by spring or fruit bloom these bees would be in condition to gather some surplus (the season being normal). Shortly after fruit bloom or before the clover flow the queens are removed and placed in common hives as nuclei, which would be self-supporting and thus form the increase. By eliminating these two queens we have disposed of the care of so many larvae and given more bees a chance to gather honey. Huge supers can be provided; or, better, the hive body may be made so that the ten-frame supers exactly fit on top. The queen thus left to keep up the supply of bees would be unable to do so; and, as a consequence, the brood-frames would be filled and left for the next season, while the bees that placed the honey there would die, and the beekeeper would fall heir to lots of honey. I almost forgot to say the cost of these surplus bees would be the two queens. I am only a beginner, but it looks better than bees at $2.50 per pound in packages.

Ohio. Chas. O. Wilkes.

Answer.—If the colony was large to begin with, you could perhaps winter them successfully in this way, but our experience in wintering small nuclei in this way has not always been successful, so that it is quite possible you may find fewer divisions in the spring than you left in the fall. Even if we intended wintering the colony as three nuclei, we would prefer thin wooden division-boards rather than screened division-boards. The use of the thin wood still gives the advantage of warmth from the adjacent nucleus, and at the same time prevents a circulation of air thru the division-board. Yet our experience has been that a colony winters better all together than it does divided into nuclei. If you try the experiment, we shall be interested in knowing your results. It may be that you will decide it better to wait until spring before dividing your colony, in which case, of course, you will need to feed in order to build them to sufficient strength. Your plan of uniting the colonies into extra-large ones is similar to that practiced by Harry Warren of Nevada, who finds the plan quite satisfactory for his locality. The extra cost of this method, however, would be more than that of two queens, for considerable honey is always consumed in rearing and maintaining a large force of bees.

MATERIAL FOR BEE SUITS.

Question.—I want to get material in white to make myself some sting-proof bee-suits. I don't know what to buy. My own bees are not bad to sting, as I keep them pure Italians; but I have taken up the work of caring for other people's bees, requeening, etc., and most of them are blacks or hybrids and often very vicious. If you will kindly advise me I shall be most grateful.

Answer.—You have certainly given me a hard task this time, to name a cloth that the bees can't sting thru. You see they can sting thru leather shoes. One proved it to me this summer. But such behavior. of course, is not usual. Ordinarily khaki proves sufficiently thick for a bee-suit, and is much more serviceable for this purpose than white cloth would be. Of course, there is a pleasure in working in a white bee-suit—all spick and span; but, if one really buckles right down to work, it will be found that in a deplorably short time the spick-and-spanness disappears. If I had but two or three colonies I might wear a white bee-suit, but for real work with the bees I prefer a khaki bee-suit.

STORES FOR WINTER. HIVES MADE OF CYPRESS.

Questions.—(1) In using sugar to feed how should the syrup be made? How much will be required to winter one hive? (2) Can I winter my bees on full combs of honey or should there be some empty cells in the combs? (3) Will soured honey or combs two years old hurt the bees if I see nothing wrong except sour honey in the cells? (4) Will bees work in hives made from cypress or any other kind of wood?

Illinois. Otis W. Jones.

Answers.—(1) When feeding for winter the syrup should be made of two parts of sugar to one of water. Every colony should be left with 30 to 40 pounds of stores. (2) The bees will naturally cluster toward the center of the hive where there are a few empty cells. The frames at both sides of the brood-nest may be completely filled with honey. In fact, some beekeepers would not hesitate to leave their colonies with all the frames filled with honey. We, however, would prefer a few empty cells toward the center of the hive for a brood-nest. (3) Old combs are even better than new since they are warmer. Sour honey would be very poor for winter stores, and would doubtless cause dysentery and death of the colony before spring. But the soured honey may be given to the bees during the summer time with no danger as the bees will use up the honey or change it before winter. (4) Bees work quite readily in cypress hives or hives made of any other wood of which we have ever heard.

BEES, MEN AND THINGS

(You may find it here)

A. I. Root, Dr. Miller, Doolittle, Alexander, Townsend, and all the other regular and occasional editors of departments or writers were to me as much friends as if our intercourse were actual and material. When Mr. Hutchinson died, I suffered, and when I had a copy that told that Doolittle also had passed I received another shock. The last number I saw without 'Stray Straws' gave me a shock, and I hurried thru for fear A. I. Root would be also missing. To me most of these men having been living epistles, preaching a vital Christianity shown in honest work.''
Mrs. I. Pursell, Norfolk County, Mass.

''As you travel along the Southern Pacific R. R. going west, you pass a range of mountains with two heads, called 'Das Cabezas.' Well, there are eight of us scattered around the foot of this mountain, handling bees, and we all get some fine honey from the catclaw and mesquite. We have all got the best place, and our little workers have brought in a big harvest all year. As we have not had our usual summer rains, many of the desert plants are blossoming early. Among them is the mescal, a plant known to flower lovers as 'century plant,' and it produces a drunk as well as honey. Our bees are gathering it now and you can not get near them they are so sassy. As one of the boys says: 'They sure have a mescal drunk on just like the Mexicans, for you can't get near them.' But every super is full as soon as we can get at them.''—H. G. Huntzinger, Cochise County, Ariz.

''European foul brood is all over the country, with quite a sprinkling of American. The State College is doing all that it can, with the money available and the few inspectors they have to control the diseases. We should have $10,000 for the two-year period, and a competent man in each of the westside counties, and until we do get it, this disease is going to gain steadily.''—W. L. Cox, Inspector of Apiaries for Grays Harbor, Mason and Thurston counties, Wash.

''I turned loose about 50 or 60 good virgin queens this summer in the middle of the day. Ten or fifteen days later I found several of them making themselves at home in queenless colonies and in colonies where there were old queens with clipped wings. I call that self-introducing. I will try this out every time I have extra queens.''—
—Charles S. Kinzie, Riverside County, Calif.

''In the winter of 1918-1919 I obtained data from Nov. 2 to April 2 on the loss of weight per day of a group of seven colonies which I wintered in double-walled hives in a sheltered location. The average decrease in weight in the five months was 15 pounds nearly. It is not quite correct to state that figure represents stores consumed, as undoubtedly more stores had been consumed and converted into brood, but there had also been some loss in the weight of the bees themselves. However, if bees can be wintered out of doors in this climate with so little weight lost during the winter, why should one bother with a bee cellar?''
L. L. Wheeler, Whiteside County, Ills.

''In the fall of 1919 I united two colonies of bees that, so far as I know, were not related. This spring when I examined them I found two queens working together peaceably. I have examined this colony several times since and each time found both queens. The last time I examined them was on July 28. They have one of the best colonies in my yard. They are in a regular ten-frame Langstroth hive. These two queens were clipped, and I know without any doubt that they formerly belonged to two different colonies.''—A. N. Norton, San Juan County, N. M.

''Last winter our bees were in ten-frame hives, two-story high, 10 frames below, 8 above. Those in the upper story had solid slabs of sealed sweet clover honey, with Hill device on top; then covered with a piece of canvas; then forest leaves and shavings over these; about 8 inches of shavings around the sides, 3 inches sawdust under the floor. They came thru alive with every queen, and when I opened the hives on March 27 I found young bees crawling around on the frames.''—A. W. Lindsay, Wayne County, Mich.

''Along the Apalachicola Valley, where tupelo honey is produced in its purity, we have harvested barely one-third of an average yield, which was also the case last year, as we harvested less honey these two years than any years before in the last 15 years. Yet the honey buyers are holding out on us and do not hesitate to mention in their correspondence that we are asking too much for honey, taking into consideration the fact that we have so large a yield. Where they get their information I am unable to say, but we do contend that we are not asking too much when we have not asked above 24c, and are now offering our crop, most of which we still have on hand, at 20 to 21 cents f. o. b. here.''—Tupelo Honey Exchange, H. E. Rish, Mgr., Calhoun County, Fla.

''In behalf of the members of our society of Rhone and France I take it upon myself to send to you on the occasion of the anniversary of your national independence their cordial salutation. We do not forget that in the darkest hours of the late war the valiant American soldiers fought heroically by the side of ours against our invaders. The simple and noble word of your general as he set foot on French soil, ‘Lafayette, we are here,’ went to the heart of every Frenchman. The beekeepers of Rhone and Durance wish happiness and prosperity to all their brothers in Ohio.’’—R. Bouvier, President of the Beekeepers’ Society of Rhone and Durance, Barbentane, France.

‘‘Recently I found a queen-cell containing a queen and worker. The worker was just about the size of one just emerging from the cell and was very closely tucked in alongside the abdomen of the queen. Heads of both pointed downward in the same direction, which would hardly be possible if it had entered the cell and been accidentally closed in, for I have never seen a worker bee enter a cell backwards. The worker was evidently raised in the queen-cell with the queen.’’—W. H. Lewis, Edmonds, B. C.

‘‘During the early spring I moved several colonies of bees to the mountains, setting them on large flat rocks. About June 1 I noticed large red ants in great numbers making nests directly under the hives. I tried several remedies without results. I then placed two pieces of soft wood, 3 inches by 4 inches, 18 inches long, under each hive. These I coated with a heavy roofing composition, manufactured by The High Grade Mfg. Co. of Cleveland, O., namely Gilso roof paint. As it is very slow drying, and has a strong odor, it not only removed the ants from the hives but also from the rocks.’’—A. F. Rexroth, Dauphin County, Pa.

‘‘Instead of mosquito bar on the extracting-tents I now use galvanized window screen. At first we thought it would kink and break, but we find to our surprise it is almost indestructible and will last for years on the tents. Where the bee ranges burn off, as they do here in California, and you have to find new locations almost every year, it doesn’t pay to build permanent extracting-houses at all the apiaries at present lumber prices. The cost of building 26 extracting-houses would be considerable. We can set up the complete outfit and be ready to extract by the time the steam will heat the knife. System is the best key to success.’’—A. E. Lusher, Los Angeles County, Calif.

‘‘I have a fine colony of bees that stayed on a limb in the open for three years. I put these bees into a hive some two or three weeks ago. For several days they did not want to stay inside of the hive. They had but little protection from the hot sun in summer, and no protection in winter except a few twigs. There was no propolis or anything over the nest. Just the natural comb. The outside comb was full of sealed honey. I got three gallons of nice honey out of this nest. The combs in the center of the nest were about two feet long, and the nest at the top was about 18 inches in diameter. Wintering bees in the open air, without any kind of protection, speaks very well for our winters in west-central Texas.’’—M. C. White, Kimble County, Texas.

‘‘The late summer and early fall have been the best for making increase that we have had in many years. Taking it all in all, I am more than satisfied with what the bees have done. In July I had some colonies that had four deep supers above an excluder. Some beekeeper friends of mine on seeing them wanted to know why I stacked them up so. I told them just for ornamental purposes. But if they could have looked into those hives they would have seen more honey than they had ever seen in all theirs put together. Some people may get along with one deep or several shallow supers, but if they do so during a big flow they will lose a large part of it or have some unsalable honey.’’—W. T. Rabb, Travis County, Texas.

‘‘In conversation with A. J. Sanford of Redmond, Ore., he stated that the thermometer went to 32 degrees below zero last winter, and his annual white sweet clover wintered. He secured a few seeds from A. I. Root, sowed them in drills, and took good care of them. So far he has gathered some pounds of seed and expects the sum total to be about three pounds from the few seeds sent him. It is evident to us that this new variety is hardy enough to stand almost anything. Redmond is in Eastern Oregon and subject to extremes in both hot and cold weather.’’—E. J. Ladd, Portland, Ore.

‘‘I was much interested in the account by E. C. Davis, July Gleanings, page 420, of his experience with greasy waste as smoker fuel. I have had the same trouble while using a dark-colored felt hat with the Muth veil. I changed the felt for a straw hat and had no more trouble, altho I still used greasy waste.’’—Everett E. Vreeland, Bristol County, Mass.

‘‘I am a young beekeeper, only 13 years old. I have 7 colonies of bees. The strongest one made 5 supers of comb honey. The rest made from 2 to 3 each of surplus. I am in school now writing when I get a few spare moments. Besides bees I sell 75 papers each evening, and am studying electricity besides my ‘Lone Scout’ work. Honey is selling for 40c per pound for fancy and 35 for other. As teacher is calling class, I will close.’’—Forest McHose, Boone County, Iowa.

‘‘We are having a nice fall flow of honey at present, Oct. 7, mostly cotton, and from present indications it will last four or five weeks yet. It gets warm down here during summer, sometimes going to 120 degrees for a few days, and it seems a bad time for queens, tho we have them all under shade here in the valley.’’—C. K. Forrest, Imperial County, Calif.

OUR HOMES

A. I. ROOT

And I, if I be lifted up from the earth, will draw all men unto me.—John 12:32.

He brought me up also out of a horrible pit, out of the miry clay, and set my feet upon a rock, and established my goings.—Psalms 40:2.

Come unto me, all ye that labor and are heavy laden, and I will give you rest.—Matt. 11:28.

ON page 492 of the August issue of Gleanings I tried to explain to you why I should say with such confidence and assurance, "I *know* that my Redeemer liveth." Well, since then I have come across a verse from a beautiful hymn that expresses better what I wish to say in four lines than I was able to do in almost a whole page. The hymn is now reproduced on records for the phonograph. Below is the verse I have referred to:

> From sinking sand he lifted me
> With tender hand he lifted me
> From shades of night to plains of light
> Oh praise His name! He lifted me

If there was ever anybody in sinking sand I was the one; and *he* in very truth, lifted me. Still more, "with tender hand" he lifted me. "From shades of night" long expressed my condition. Only those who have been there can imagine or realize the horror of the "night" of unbelief and infidelity; and in the same way only a poor soul who has been thru the change, from shades of night "to plains of light" can realize what *that* means. And the expression in that last line, "Oh praise his name!" comes in so beautifully that I feel like shouting when I think it over. And then the last three words, "He lifted me," are the culminating climax of this wonderful hymn.

A few Sundays ago in our men's Bible class a young friend of mine suggested that not only was the Bible inspired but that some of our precious hymns were the work of the inspiration of the Holy Spirit: and I think that this little hymn that I have quoted from was most surely the result of the inspiration of the Holy Spirit. During the years of my early manhood I had but little or no thought of anything but self. Self was first and foremost. I did not go to church, I had no interest in Sunday-schools, and the Y. M. C. A. did not appeal to me. A young minister from Oberlin came to our town. I went to hear him more out of curiosity than anything else. I wondered if that *boy*, as I called him, could really preach. His first work, so it seems, was to make personal calls on the people of the town. I am afraid I was rude to him when he tried to do his duty toward me as well as toward everybody else; but thru God's providence he was instrumental in "lifting me." He is now gone, and gone to his reward: but well do I remember "the tender hand" with which he took me to task while he talked with me plainer than any one else had ever done. The outcome was a complete change in my life. It has been called "the new birth." I not only pleaded in public for the dear Savior I had found, but I established Sunday-schools in the surrounding schoolhouses—so many of them, in fact, that there were hardly hours enough on Sunday for me to go from one place to another. As fast as I could I installed superintendents in these mission schools. One of our best and most successful superintendents was taken from the *Medina jail.* He had served one term in the penitentiary for stealing chickens: and as soon as he was out he went at it again; and when I first met him he was on his way to serve his second term in the penitentiary. He was one of that reckless, defiant class, and declared that they might take his dead body back to the penitentiary, but they would never take him alive. Profane, squirting tobacco juice, defying God and man, I found him in the stone jail. He went to his reward many years ago: but he went rejoicing, and trusting in the "tender hand" that lifted *him* from the "sinking sand" of sin and crime.

Toward the close of one sabbath, just as winter was coming on, after I had finished my trip, mostly on foot, to my various schools, I was told that in the neighboring town a young married man (with a wife and two children) was preparing to open a new saloon on the following Monday morning. In fact, he had his liquors all purchased, and placed on the shelves ready for business. This friend of mine said the saloon would surely open the next morning unless something could be done to stop it: and he said he did not know of anybody else than myself who could do what would have to be done, and done at once.

Tired as I was, I started off, praying for faith and guidance of the Holy Spirit. The man was stubborn and obdurate. To my great surprise his wife sided in with him. All I could say or do was unavailing. I asked to kneel in prayer before leaving. After some hesitation permission was granted. My prayer was something like this:

"O Lord, thou seest how utterly I have failed in my work. Give me faith while I pray that thy Spirit may take this father and mother in hand, and do what I have utterly failed to do."

Then I prayed for the two children who were present. I think the outcome must have been a surprise to the father as well as to myself. The young mother rose up, and, altho her eyes were drenched with tears, there was a new light in them that broke forth. She arose to her full height, and, pointing her finger at her husband, said, "Sir, you know how I have objected to this thing from first to last; but I am ashamed to say that I reluctantly consented. I have changed my mind, and hereby give you notice that if you open that saloon tomorrow morning, as you are planning, you and I are no longer husband and wife."

At this he turned on me and said:

"Aren't you a pretty specimen of Christian to come here and break up a family and make trouble between a man and his wife?" *

I am afraid, to tell the truth, that the result was that I laughed outright. I did not fear any separation, and there was none. Under the circumstances I did not worry, even if I had succeeded in making trouble in the little household. There was present with me an old friend of mine who had been all his life a skeptic and an infidel, and one who ridiculed Christianity. As we went out of the door he took back what he had said, in words something like this:

"Mr. Root, if this is Christianity, I will take back all I have ever said against it. I believe in that kind of religion—a sort of religion that *does something.*"

Well, when I started back home it was still snowing, pitchy dark, and I had no lantern. I had to make my way along the railway, and it was a good deal of the time difficult to get my feet on the ties, but I was so happy that I felt like shouting praises almost every step of the four miles.

The stanza from the hymn "He Lifted Me" was clipped from a weekly periodical entitled God's Revivalist and Bible Advocate, Cincinnati, Ohio. From the same periodical, dated Aug. 19, I clip as below from an article entitled The New Birth:

> We have a nature as we come into the world that is thoroughly alive to sin. In all languages men know how to quarrel, how to be fussy and abusive, how to lie, how to curse and be profane. Sin is common to the race, and sinful speech to all languages. Thus men are alive to evil, to wicked deeds, and to corrupt conduct.

The statement in the above, that all nations and all languages know how to curse and swear, was a new idea to me; and it recalls to my mind that when I passed the winter in Cuba a good missionary explained to me the "swear words" used in the Spanish language. Somehow I had got it into my head that the heathen on the face of the earth who do not know our language do not swear nor curse at all. Very likely the above statement is true. If, then, humanity, no matter where or what language they speak, know how (perhaps we might say from instinct) to curse and swear, they must have *some* conception of God the Father of us all. If, then, they know how to rebel against the rule of the great Father, it follows, so at least it seems to me, that they have some conception also of love and loyalty to this same God. Or, to put it short, every heathen, unless he is an idiot or an imbecile, has a conception of right and wrong. I wish every reader of Gleanings might read that whole article on the new birth. It is by L. L. Pickett. I quote again, toward the close of the article, a consideration of a child of humanity *after* the new birth.

> He passes from death unto life. Old things pass away. All things become new. He now loves what he once hated, and hates what he once loved. Old habits are abandoned, old ways forsaken. His plans are new; his companions, his purposes, his desires are new. Sin becomes exceedingly sinful to him. Its ways are offensive, repulsive. He is *born again.*

The expression in the above, "He now loves what he once hated," pictures my poor self exactly. All at once I turned square about—"old habits abandoned, old ways forsaken." In some of our old hymn-books there is a beautiful hymn beginning:

> Jesus, I my cross have taken.

Let me digress again.

Our youngest son, Huber, urged that Mrs. Root and I should go with him down to Cleveland and visit a moving-picture show. It took a strong hold of him because it told of a mother's love and a

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I hardly need tell you that the saloon was never opened. I think he sent the liquors all back to where he got them. Neither did any divorce follow; and I am sure the good father, when he came to think it over calmly, decided more emphatically than he ever did before, in regard to the good wife, in the language of Holy Writ, "Her price is far above rubies."

mother's prayers. I was, of course, pleased with it, but somehow I felt a longing all the way thru to see some credit given to "the Lamb of God that taketh away the sin of the world." Briefly, the play was given of a small boy who was eager to get hold of a violin. He not only made wonderful progress on the violin, but his salary when he was grown up went as high as $1,000 for playing for a single evening. In this way the mother's prayers were answered. Now, if this violin-playing had been the means of bringing sinners to repent I could most heartily have enjoyed it all the way thru. But there was no such mention from beginning to end, and it made me think of that last verse in the old hymn I have mentioned. I have been told that this hymn was composed by a young girl who was driven from her home because she had come out publicly and acknowledged the Lord Jesus Christ as her Savior. I suppose you all have a copy of this hymn, so I will quote just the concluding stanza:

Oh! 'tis not in grief to harm me,
While thy love is left to me;
Oh! 'twere not in joy to charm me
Were that joy unmixed with thee.

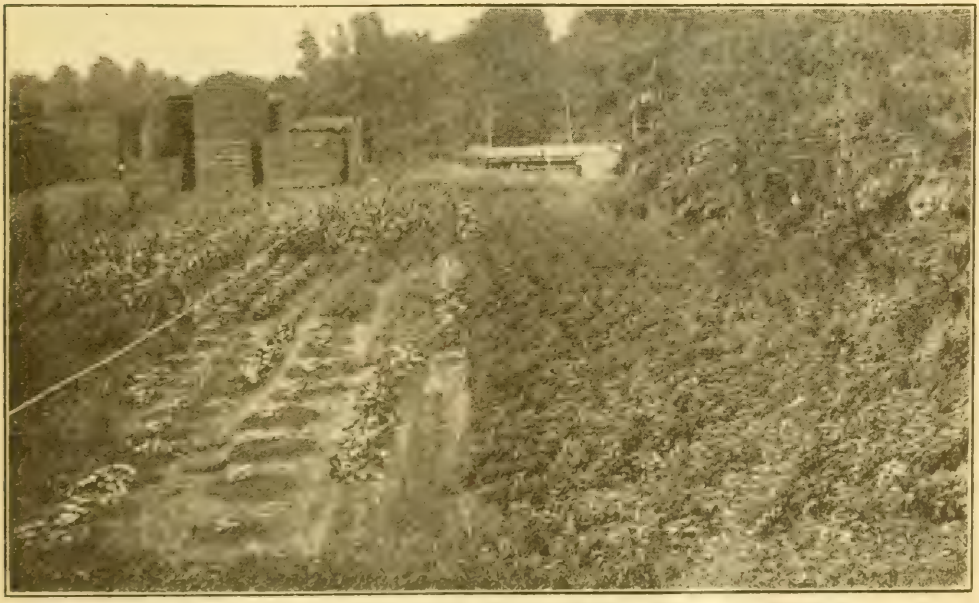
I am not sure that I can as yet fully subscribe to the first and second lines; but year after year as I grow older I have no joy or charm in anything unless that joy is mixed, in some way, and connected with the dear Savior who lifted *me* out of the miry clay and placed my feet on the solid rock.

Does some poor soul ask, in concluding my talk, what he must do to receive that new birth? Well, the three concluding verses in the 11th chapter of Matthew give full directions for the guidance of every sinful soul. Here they are:

> Come unto me, all ye that labor and are heavy laden, and I will give you rest. Take my yoke upon you, and learn of me; for I am meek and lowly in heart, and ye shall find rest unto your souls. For my yoke is easy, and my burden is light

OUR SUMMER GARDEN IN OUR OHIO HOME.

My good friends, the principal reason for giving you the accompanying picture is to show you the luxuriant growth of seven rows of that Canadian potato—see page 494, Gleanings for August. The raised hills on the left of the picture are my melons. For several seasons we have had so much trouble from excessive rains, that many of the melons rotted before they were ripe. In our Florida garden, as I have told you, we have raised beds about 12 feet wide with paths about one foot deep between them to carry off the water when we have such tremendous rains. Well, I have tried this here in Ohio; but even then my melons seemed to suffer from too much wet. So I planted the seed on little mounds four or five feet across; and just now, Sept. 2, there is quite a good promise of cantaloupes, even if our watermelons should not ripen. The picture was taken about the first of August. The white line



Our Ohio garden showing the Canadian potatoes that gave a yield a year ago of over 1000 bushels to the acre.

along the left is a sprinkling-pipe I have mentioned heretofore. I have used it only once during the present season; and as a big shower came up almost immediately afterward, I think my sprinkling did more harm than good. You can get a faint glimpse of the new sweet clover right in the foreground between the potatoes before mentioned and a row of beets. The seed was sown in the greenhouse about the middle of April, and many of them are now six feet high or more. Down at the lower end of the garden you will notice the sweet corn that was planted at four different times. As a result we are having plenty of beautiful nice corn, not only for our own use, but to give away to our less fortunate neighbors.

At the lower end of the garden you get a glimpse of a part of our lumber piles; and at the left of these piles there is a flat car from which the lumber has just been removed. At the further corner, right hand, is a glimpse of some evergreen trees that I planted for a windbreak about 40 years ago. But they are getting to be so large that we are planning to remove them.

Later.—Today is Oct. 7, and I will have to explain that the picture of our garden did not "get in" until after the notice on page 581 of our October issue was printed, telling about the rotten potatoes. I had planned to give our subscribers some eyes of this wonderful potato by mail—a potato that gave over 1000 bushels to the acre; but as they rotted when the Early Ohio and the Burpee Extra Early did not rot at all I gave up that project; but I am glad to say that, after getting the potatoes thoroly dried out, the rotting ceased entirely, and they are keeping now as well as any other potato. However, I shall have to conclude that this particular potato is more disposed to rot than other varieties.

"HIGH COST OF HIGH LIVING."

On page 46 of January Gleanings I told you about my big discovery of a most healthful food, and also a most delicious food, at a fraction of the cost of a greater part of the food we are buying every day at our groceries and otherwise. That talk was about parched wheat or parched corn, etc., ground in a little coffee mill or some other kind of little home mill. After this parched corn was ground, Mrs. Root made it into a sort of mush. After a while she became tired of making " so *much* mush," and for a change we have been buying more or less puffed wheat, corn, oats, toasted cornflakes, shredded-wheat biscuit, etc. I mention these because they have become great staples apparently. Every little while a sample package of the puffed wheat or cornflakes is dropped on our front porch. Now, these health foods—foods that are ready to serve on a minute's notice—are a splendid thing; in fact, I have thanked the Lord, and now thank him again, that these convenient foods can be purchased at every corner grocery as well as in all the large cities. When you are off on an automobile trip and want it on a minute's notice, just step into a restaurant and tell them that you want cornflakes or shredded-wheat biscuit and a bowl of milk, and you will get it in a twinkling. I usually want my milk hot, but that takes a little more time. Well, in counting everything—milk and these cereals—they constitute a comparatively cheap way of living. I think I usually get a pretty good lunch, even in the cities, for about 15 cents—10 for the milk and 5 for two shredded-wheat biscuits. But here is another side to this matter:

On every package of wheat cereals I have mentioned you will find a statement in fine print telling just how many ounces you get for your 15 cents. I believe a law was passed requiring the manufacturers of these foods to state exactly how much they give for the money. I do not know whether you have read this fine print or not; but here is the point:

The puffed wheat, puffed corn, etc., cost the most of any of them; and I am not sure but it is the most delicious and most wholesome; but you pay 15 cents for only 4 ounces, or ¼ pound; and their advertisement declares it is just the pure grain and nothing else, just as nature furnished it, except that it is well cooked.

Well, 15 cents for 4 ounces of wheat would be 60 cents for a whole pound, and yet every daily paper quotes wheat at about 4 cents a pound. If you put your wheat into a dripping pan and set it in the oven until it is nicely browned, and then grind it in a mill, compared with puffed wheat the latter costs not only *10 times* as much but *15 times* as much. The manufacturers of cornflakes give us 8 ounces instead of only 4. But corn is usually only a little more than half the price of wheat; but we can safely say that it costs you ten times as much to buy cornflakes as it does to parch your corn and grind it as I have suggested. When it comes to shredded-wheat biscuit we have 12 ounces instead of 4 or 8; but even then there is a tremendous margin between the parched wheat and the shredded-wheat biscuit. Of course it costs quite a little to make the pasteboard boxes and do the printing, etc., besides the cost of distribution all over the land at one fixed price. I believe the biscuit people advertise that there has as yet been no advance in their prices; but the prices were fixed in the first place with enough margin so they could keep one steady price notwithstanding the fluctuations in the wheat market.

When my Home department in GLEANINGS was started, something like 50 years ago, one of the first things I did was to experiment in regard to the cost of living. I contrasted the big difference between the stuff grown in your own garden and buying the same in cans or glass receptacles at your grocery; and I decided even then, that it was a great waste of money to buy any form of food in tin cans if you can possibly avoid it; and when it comes to glass the matter is even worse. Glass is heavy for transportation, and usually costs more than tin. If you can purchase these foods, either in tin or some other kind of container, so the package may be used over and over again, of course it is an advantage. In many places you can get canned fruits in Mason fruit jars that may be used over and over again. Perhaps some of you may come back at me and say, "Mr. Root, how about the Airline honey that is so extensively advertised and sold now in almost every corner grocery?" Well, I am glad I can honestly say in this case, as I have just said in regard to the other foods, "Keep some bees yourself—at least enough for your own family consumption. If you can not do this, take your automobile (almost everybody has an automobile nowadays) and go and visit some beekeeper and buy enough to last six months or a year, thus saving the grocer's profit and the cost of tin and glass receptacles." Carry out the same idea in regard to everything you have on your table.

If you have plenty of means, and wish to avoid the cost of expensive help in your kitchen, then perhaps it is well to keep right on getting your stuff at the groceries just as you have been doing. But bear in mind that I have no ill will toward the grocers. They are good friends of ours. Neither have I any ill will toward the manufacturers of food products. I am glad they can afford to dump a little sample of parched goods on our porches to let us know how good their things are and what they have accomplished in the way of furnishing our daily bread on a moment's notice, and at a cost of only a few pennies or a few nickels. If you, my dear friend, have been wondering how you might reduce the "high cost of living" in your own home, just make it your study to follow the suggestions I have given you in the above.

Later.—After the above was in type I found the following clipping in the Cleveland Plain Dealer:

> The farmer was called a profiteer when he got $2.20 a bushel for his wheat. But what about selling this same wheat as puffed or popped wheat at $36 for sixty pounds? He was called a profiteer when he got $2 a bushel for corn, but what about corn flakes bringing $15 for fifty-six pounds? He was called a profiteer when he got 35 cents for cotton of which about 4 cents' worth made 75 cents' worth of gingham, and his 65-cent wool mounts to $25 when in a manufactured form.

It seems to intimate that somebody besides myself had been thinking along the line of the above. Well, now, as we have both been criticising the puffed wheat—that is, criticising the *price*, nobody objects, of course, to the quality of the breakfast food—I want to say something in its favor. The nicest "apple pie" I ever ate, or tasted, was not really apple pie at all. It was apple pie made of yellow Transparent apples, and puffed wheat, crisped in the oven, for pie crust. It was not only more appetizing but more wholesome, I am sure, than any *common* apple pie. The sauce was flavored with cinnamon, my favorite condiment; and so far as the expense was concerned it was a little cheaper then any apple pie that we get at the restaurants. By the way, I notice that a Cleveland restaurant has been overhauled for charging 15 cents for a sixth part of an apple pie. He paid the baker 30 cents for the pie and then received 90 cents for cutting said pie into six pieces. I do not know but nice, clean wheat parched in the oven would do almost as well as the puffed wheat, but it would be somewhat more trouble.

"NOT AS YET 'SINSIBLE' OF THE FACT."

Once upon a time a big turtle that had been beheaded was out in front of a restaurant. A crowd was gathered around to see how long it would live without a head. An Irishman in the crowd settled the question by remarking, "Oh! he's dead all right, without any question; but as yet the craythur does not seem to be quite sinsible of the fact." Well, the decapitated turtle reminds me of John Barleycorn. He is dead all right (praise the Lord), and dead for evermore, but some of his advocates are like the beheaded turtle—not as yet "sinsible" of the fact.

THE NEW ANNUAL SWEET CLOVER UP TO DATE.

As I dictate, Oct. 22, we have been having a long severe drouth. In fact, we have had scarcely any rain since first of the month. As a consequence, the pastures are dried up, and pretty much everything except the annual sweet clover. Well, this new clover is a pleasant surprise. We have something like 200 plants in our garden, of different ages. Those planted out in May do not seem to mind the drouth a particle. They are covered with bees from morning till night, and putting out new blossoms continually. If we had acres instead of one or two hundred plants it would furnish the biggest amount of feed (and, mind you, the *very best* of feed) of any plant I ever knew or heard of. And now here is another point:

Our good friend Fields, of the Henry Fields Seed Co., sent me a picture that I hold in my hand. A single plant of the new sweet clover stands away up above his head, and that is not all. It is spread out from right to left and all around like a great bushy apple tree. so that I judge from the picture of this single plant that it has spread out so as to be seven or eight feet across. The reason of this enormous growth is probably because it has had the right soil (with plenty of lime) that just suited it, and extra cultivation and plenty of room. From this I judge the plants might be located as far apart as hills of corn. With such soil and such cultivation as Mr. Fields gives it, it would cover the ground. The picture will be given in our next issue.

Below are some suggestions from friend Fields in regard to the new clover, especially the matter of scarifying the seed. The reports indicate, without question, that the seed comes up not only more quickly, but every seed is more sure to grow where it is well scarified.

SCARIFYING THE SEED.

Friend Root:

We are threshing our annual sweet clover today, and hope to have 1,000 lbs. Half of it has been sold to a man in Ohio.

We are getting an excellent yield of seed and it is of very fine quality. We are cleaning it up in beautiful shape and then scarifying it on top of that. The scarifying entails quite a little bit of shrinkage and loss, but I believe it ought to be done anyway.

What you have yourself, however, you can scarify by a little hand work, if you care to take the trouble. All you need to do is to cover a block of wood with sandpaper and then pour the seed out on a cement floor, or other smooth, hard surface, and roll it around and rub it with this block of wood. You will soon have a good job of scarifying, without a great deal of work. Of course it is a little bother, but worth the while.

I would suggest that you publish something to this effect in Gleanings, for there will be lots of people with small amounts of sweet clover seed who will wonder how they can hull it and scarify it.

If the seed is dry you can hull and scarify it sur prsingly easy this way, but of course only in small amounts.

HENRY FIELD SEED CO.
By Henry Field, Pres
Shenandoah, Iowa Oct 18, 1920

We shall continue right along to furnish little packets of the seed free of charge, but we have *no seed to sell*. If you wish to *purchase* seed, go to Fields. Their advertisement is in this issue.

REPORTS ON THE ANNUAL SWEET CLOVER.

Friend Root:

The seed was planted on May 20, 1920. On Sept. 5, 1920, the plant stood 9 feet above ground line, 108 inches of growth (from time seed was planted) in 108 days. The plant was dug up Oct. 7, 1920; it was then 9 feet 1 inch above ground, and the root system was 2 feet below ground, making total length of plant 11 feet 1 inch, or 133 inches. The diameter of plant at ground line was 1¼ inches, and it weighed 4¾ pounds. The amount of seed was 3 oz (*estimated*). This plant was grown from a free sample of seed from Prof. Hughes, Ames, Iowa.

O. T. ROWLAND.
Elsmere, N. Y., Oct. 11, 1920.

"OFF TO FLORIDA."

Once more I am planning to start for my Florida home after election day; and once more, dear friends, remember I am ready to give a prompt answer to any question you may ask if you will inclose in your letter an addressed postal card. As I have no stenographer down in my Florida home I can not write very much; but I think I can promise as much as I can get comfortably on a postal card. Now, mind you, I do not care any thing about the expense of postal cards nor of postage stamps; but I do want you to address the postal card or envelope yourself. You can probably write your name and residence so that the postal clerk will be able to read it; and if you do this for me I can write my answer without even looking to see who you are or where you are. Several friends in winters past have sent me postal cards without *any* address.

"NOTES OR TRAVEL."

Today is Oct. 22, and Ernest and I are planning an overland trip by automobile from Medina, O., to Bradentown, Fla.; and I am proposing to resume, at least for a time, my ''Notes of Travel'' of years ago. Our route will be furnished by the great manufacturers of rubber tires, of Akron, O. As we are being continually questioned about the possibilities, state of the roads, expense compared with travel by rail, etc., no doubt great numbers who are contemplating an automobile trip from different parts of the North in order to spend the winter in Florida, will be interested in these notes.

THE LEAGUE OF NATIONS

The prospect that some measure is *possible*, before the great wide world, to stop humanity from cutting each other to pieces as a means of settling difficulties or misunderstandings, is, in my opinion, the greatest and most important movement since humanity was born. Prof. Irving Fisher, of Yale University, says: "It is, in short, reducing fighting of man against man, and substituting the fighting of man against disease and hunger." The *good Book* tells us of the glad time when men shall "beat their swords into plowshares, and their spears into pruning-hooks." May God hasten the day.

Classified Advertisements

Notices will be inserted in these classified columns for 30c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISEMENTS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued while they are in good standing.)

P. C. Chadwick, J. W. Harrison, Seward Van Auken, D. L. Woodward, Strohmeyer & Arpe, P. W. Sowinski, R. C. Ortleib, E. E. Mott, J. P. Moore, J. A. Jones & Son, Elmer Hutchinson, H. B. Gable, Hardin S. Foster, M. V. Facey, H. J. Dahl, A. E. Crandall, Robert Conn, M. Bates, Leonard-Morton Co., P. J. Doll Bee Supply Co., Deroy Taylor Co., W. D. Achord.

HONEY AND WAX FOR SALE

FOR SALE—Light honey, two 60-lb. cans to a case. I. J. Stringham, Glen Cove, N. Y.

FOR SALE—Clover, basswood and buckwheat honey in 60-lb. cans. Bert Smith, Romulus, N. Y.

FOR SALE—White clover and basswood blend honey in new 60-lb. cans, two in case. Sample 20c.
Geo. M. Sowarby, Cato, N. Y.

FOR SALE—Very choice white-clover extracted honey in 60-lb. cans.
Noah Bordner, Holgate, Ohio.

FOR SALE—Extracted clover honey in car lots. Send for sample if interested.
J. D. Beals, Oto, Iowa.

FOR SALE—A1 quality white sweet clover honey, 60-lb. cans, 22c f. o. b.
Joe C. Weaver, Cochrane, Ala.

FOR SALE—Clover-basswood honey in new 60-lb. cans and 5-lb. pails.
W. B. Crane, McComb, Ohio.

FOR SALE—Extra quality white clover honey in new 60-lb. cans. Write for prices.
Edw. A. Winkler, Joliet, R. D. 1, Ills.

FOR SALE—Buckwheat goldenrod blend honey, in 60-lb. cans, two cans per case, 22c lb. Sample, 15c.
Fred Telshow, Waymart, Pa.

FOR SALE—Well ripened raspberry-clover blend honey in 60-lb. cans, two cans per case, 25c a lb. Sample, 15c. Fred Telshow, Waymart, Pa.

FOR SALE—Extra quality clover honey in cans and barrels. Write for special prices.
F. W. Lesser, East Syracuse, R. D. No. 3, N. Y.

FOR SALE—Buckwheat honey in new 60-lb. cans two to the case and 160-lb. kegs.
B. B. Coggshall, Groton, N. Y.

FOR SALE—Clover honey with slight basswood blend, new 60-lb. cans; also buckwheat, 60-lb. cans.
H. F. Williams, Romulus, N. Y.

FOR SALE—Choice buckwheat honey in 60-lb. cans two to case at 2[illegible]c per lb. f. o. b. here.
Vollmer & Demuth, Akron, N. Y.

FOR SALE—15,000 lbs. fancy choice extra well ripened white clover extracted honey in new 60-lb. cans at 2[illegible]c.
Edw. A. Winkler, Joliet, R. D. 1, Ills.

FOR SALE—Michigan white honey, in car lots or less.
Michigan Honey Producers, East Lansing, Mich.

FOR SALE—10,000 lbs. A1 quality white sweet clover honey, in new 60-lb. cans. Will sell in quantities to suit. Sample free.
W. D. Achord, Fitzpatrick, Ala.

FOR SALE—Extracted clover honey in 60-lb. cans, $27.50 per case of two cans. Selected No. 1 comb honey packed eight cases in a carrier, $7.50 per case. Prices f. o. b. here. J. D. Beals, Oto, Iowa.

FOR SALE—New crop extracted clover honey two 60-lb. cans to case, $30.00 per case; in 5-lb. pails, $1.50 per pail; packed 12 pails to case or 30 to 50 pails per barrel. H. G. Quirin, Bellevue, O.

FOR SALE—Clover, basswood or buckwheat honey, comb and extracted, by the case, ton, or carload. Let me supply your wants with this fine N. Y. State honey.
C. B. Howard, Geneva, N. Y.

LOCUST DELL HONEY—This celebrated honey is now ready for delivery; clover, $15.50 per 60-lb. can; $30.00 for two in a case; buckwheat, $12.50 and $24.00 respectively.
Alfred W. Fleming, Hudson, N. Y.

EXTRACTED HONEY—New white sage, 60-lb. cans, 24c a lb.; white Arizona, 60-lb. cans, 20c lb.; white N. Z. clover, 56-lb. net cans, 23c a lb.; L. A. Haitien, 400-lb. barrels, 18c a lb.; buckwheat honey, 160-lb. kegs, 20c a lb. Cans two to a case f. o. b. New York. Sample sent for 20c.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE—150 cases white clover, 17c lb.; 400 cases L. A. alfalfa, 15c; 150 cases buckwheat, 12c; 300 cases L. A. sage, 15c; 75 cases orange, 18c; white Haitien, 12c; amber Haitien, 11c in 400-lb. barrels; 50,000 lbs. Chilian in kegs, 10c lb. Beeswax, any quantity, 30c a lb. All f. o. b. New York.
Walter C. Morris, 105 Hudson St., New York.

FOR SALE—Clover extracted honey of unsurpassed quality; new cans and cases, prompt shipment. You will be pleased with "Townsend's quality" extracted honey. Not a single pound extracted until long after the flow was over; thus the quality. Would advise intending purchasers to order early, as we have only a half crop. Address with remittance
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

Quote me your best price on clover honey in 60-lb. cans. E. C. Pike, St. Charles, Ills.

WANTED—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

BEESWAX WANTED—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED—Bulk comb, section, and extracted honey. Write us what you have and your price.
J. E. Harris, Morristown, Tenn.

BEESWAX WANTED—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax, and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address, so we can identify it immediately upon arrival, and make prompt remittance.
The A. I. Root Co., Medina, Ohio.

We buy honey and beeswax. Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to case. Extracted honey, quantity, quality, how packed and send samples.
Chas. Israel Bros. Co., 486-490 Canal St., New York City.

FOR SALE

HONEY LABELS—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

ROOT'S goods at Root prices. A. W. Yates, 3 Chapman St., Hartford, Conn.

FOR SALE—One-pound jars in two-dozen cases, ten cases or more at $1.75 per case, f. o. b. factory. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

How many queens have you lost introducing? Try "The Safe Way" push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

ROOT'S BEE SUPPLIES—For the Central Southwest Beekeeper. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

PORTER BEE ESCAPES save honey, time and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FOR SALE—To reduce stock, crates of 96 one-gallon cans, with bails and three-inch screw caps, at $17.50 per crate f. o. b. Grand Rapids.
A. G. Woodman Co., Grand Rapids, Mich.

FIVE-GALLON SECOND-HAND CANS. — Buy supply now for next season as price advancing. In good condition, two to a case, 50c per case or 100-case lots at 40c per case f. o. b. New York.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FLORIDA BEEKEEPERS—You can save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE—25 acres, second bottom, four-room brick house, barn, hog and hen house, one acre fruit trees. Hog-tight fence around entire place. All under cultivation. Fine place for bees and fruit.
C. S. Bennett, 308 7th St., Charleston, Ill.

FOR SALE—Good second-hand double-deck comb honey shipping cases for 4¼ x 4¼ x 1⅞ sections, 25c per case, f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash, and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE—Two-frame, non-reversible Novice extractor, only used one season, $15.00 f. o. b. at Grass Lake, Mich. Mrs. Thomas Durbin.

FOR SALE—Genuine White Annual Sweet Clover. Garden-grown on our grounds and guaranteed pure. New crop seed, 1 lb., $5.00; ¼ lb., $1.50; 1 oz., 50c, all postpaid.
Henry Field Seed Co., Shenandoah, Iowa.

FOR SALE—27 Root 4 x 5 x 1⅜ 10-frame comb supers, new, painted, $1.40 each; 95 ditto, used once, $1.25 each; 12 ditto, unpainted, $1.15 each. $165 takes lot.
C. C. Brinton, 32 Luzerne Ave., Pittston, Pa.

FOR SALE—5000 fences for 4 x 5 x 1⅜ sections to be used with slats, $4.00 per 100; 50 ten-frame Danzenbaker comb honey supers, nailed and painted, good as new, $2.00 each; 500 Alexander feeders, 30c each, f. o. b. Montgomery.
J. M. Cutts, Montgomery, Ala.

FOR SALE—500 pounds of Dadant's light brood foundation for Hoffman frames, put up in boxes holding 50 pounds net. This foundation is in the best of shape, the same as I received it. I will not accept orders for less than one box. Price, 75c per pound. M. E. Eggers, Eau Claire, Wisc.

FOR SALE—About 100 Jumbo hives with metal and inner cover and bottom, $2.75 each; 60 shallow extracting supers, 6¼ in. deep, 75c each; 20 standard bodies, $1.00 each; some 4¼ x 4¼ and 4 x 5 comb honey supers, 65c each; a few queen-excluders, everything 10-frame. Good as factory-made hives. Everything nailed and painted and in A1 shape. Jumbo hives not delivered until next spring.
A. H. Hattendorf, Ocheyedan, Iowa.

FOR SALE—25 Jumbo 10-frame hives, metal tops; 35 10-frame hives, metal tops; 30 empty 10-frame hives, wood tops; 30 empty 8-frame hives, wood tops; 40 bee-escape boards and excluders; 34 lbs. Jumbo foundation; 30 lbs. light brood foundation. Hives painted white, in good condition, with full sheets of foundation. Requeened this year, Italian bees. Reason for selling, am moving to Florida for other business. Will sell at first reasonable offer. C. D. Shinkle, Williamstown, Ky.

BARGAINS in used supplies—40 plain joint standard 10-frame brood-chambers, N. P., 9¼ in. deep, 40c; 25 supers filled with 28 plain sections, 4¼ x 1½ with full sheets foundation and fences, 80c; a quantity of bait sections at 2c each; 135 comb honey supers for 4¼ x 1½ plain sections, 10-frame size, complete, 35c; 10 single board 10-frame size covers, 35c; 8 lbs. extra-thin foundation, 3⅞ x 15½, 80c; 10 lbs. light brood, 16½ x 7¾, 75c; 5¾ lbs. medium for Jumbo frames, 75c; 40 wood-zinc excluders, 16 x 20, 30c; No. 17, Cowan rapid reversible extractor used but little, $20.00. Root wax press, $9.00.
Ernest Reid, R. D. 2, Clio, Mich.

REAL ESTATE

FOR SALE—One 20-acre farm with 200 colonies of bees and ¾ acre of ginseng.
L. Francisco, Dancy, Wisc.

Relinquishment! 80 acres on the country road between Hemet and Babtiste. Best location for bees in Southern California. Price $500. Plenty water and feedhouse and fence. Owner blind.
T. Rinden, Babtiste, Calif.

FOR SALE—Bee, poultry and fruit farm of 20 acres, good six-room dwelling, small stable, good chicken house, good water, level land, 16 acres in cultivation, balance pasture, no bee disease, bearing orchard, one acre strawberries. Mail route and school wagon service, one mile from R. R. town, high school and good markets. Price $2700, $1000 cash, balance time. Apply to owner.
D. H. Wells, Ridgely, Md.

WANTS AND EXCHANGE

WANTED—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED—500 to 1000 lbs. pure crude beeswax, for immediate shipment. Write your offers to
Apothecaries Hall Co., Waterbury, Conn.

WANTED—100 swarms Italian bees, in 10-frame hives. State lowest cash price and condition in first letter. Grace Reading Company, Redford, Mich.

WANTED—To buy for cash, a Barnes saw outfit, complete for beekeeper's use. State age, condition, and lowest price in first letter.
Grace Reading Company, Redford, Mich.

WANTED—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, O.

OLD COMBS WANTED—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

FOR SALE—Southern California ranch of 216 acres of land. 15 acres in bearing peach trees, early and canning varieties; 19 acres under ditch line, good citrus land; 25 acres grain land; balance 157 acres pasture with good spring; 90 colonies of bees in 9 and 10 frame hives, two-story and good Italian stock, average 120 lbs. per colony, spring count, 1920. Plenty of forest reserve land joining, making a good bee range. Small house sheds and honey house. Four miles from town and railroad, one mile from graded school. Price, $10,000. Terms. Address owner.
Chas. F. Schnack, Escondido, Calif.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens, $1.00 each.
W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

When it's GOLDEN it's Phelps. Try one and be convinced. Virgins, $1.00; mated, $2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE—Italian queens, three-banded and Goldens, untested, $1.25 each; 6, $6.50; 12, $13.00. Now ready. G. H. Merrill, Pickens, S. C.

Queens of Dr. Miller's strain, untested, $1.25 each, $12.50 per dozen; tested, $1.75 each, $18.00 per dozen. Safe arrival and satisfaction guaranteed. Geo. A. Hummer & Sons, Prairie Point, Miss.

Golden queens ready April 15th. One queen. $1.50; 6, $7.50; 12, $14.00; 100, $100.00. Virgins, 75c each.
W. W. Talley, Greenville, R. D. No. 4, Ala.

PHELPS' GOLDEN QUEENS will please you. Mated, $2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

BEES BY THE POUND — Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Callallen, Texas. E. B. Ault, Prop.

FOR SALE—40 strong colonies of bees in 10-frame hives, part standard, remainder Buckeye hives. No disease. Hives full of honey. Also equipment. L. L. Wheeler, Sterling, Ills.

FOR SALE—25 colonies of bees, free from disease, stores for winter. In Root 10-frame hives, combs drawn from full sheets, $12.00 per colony in one lot. J. F. Garretson, Bound Brook, N. J.

PURE ITALIAN QUEENS—Not the cheapest, but the best we can grow; bright yellow, with clean bill of health; sure to please; such as we use in our own yards. Untested, $1.25; $14.00 per dozen.
J. B. Notestein, Bradentown, Fla.

FOR SALE—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, $1.50 each. After June 15, $1.30 each; $12.00 for 10; $1.10 each when 25 or more are ordered. Allan Latham, Norwichtown, Conn.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, $1.00; mated, $2.00.
C. W. PHELPS & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, $2.00; 6, $8.00; doz., $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

We are now booking orders for early spring delivery of two and three frame nuclei, with untested or tested queens. Write for prices and terms. We also manufacture cypress hives and frames.
Sarasota Bee Co., Sarasota, Fla.

DAY-OLD QUEENS at practical prices. Superior improved Italian stock. Mailed in safety introducing cages. Safe arrival guaranteed to any part of the U. S. and Canada. Send for circular. Prices, 1, 75c; 10, $6.00; 100, $60.00.
James McKee, Riverside, Calif.

FOR SALE—Around Denver, Colo., 300 stands of bees in standard hives with Hoffman frames, partly equipped for comb honey, about 500 supers, the other part for extracted honey about 200 bodies; 85 per cent young queens and a lot of extras. Price, $4500. Everything can be had by Nov. 1.
G. J. Westerik, 1921 Larimer St., Denver, Colo.

The A. I. Root strain of leather-colored Italians that are both resistant and honey-gatherers. These queens and bees need no recommendation for they speak for themselves. Orders taken now for next season. Untested, $1.50; select untested, $2.00; tested, $2.50; select tested, $3.00. Circular free. For larger lots, write.
A. J. Pinard, Morgan Hill, Calif.

ITALIAN QUEENS—The Old Reliable three-banded Italians, the best all-round bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, $1.50; 6, $8.00; 12, $15.00. Tested, $2.25; 6, $12.00; 12, $22.00. Selected tested, $3.00 each. Descriptive circular and price list free.
John G. Miller, 723 C St., Corpus Christi, Texas.

FOR SALE—Pure Italian queens, Golden or leather-colored, packages and nuclei; 1 untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100; virgins, 50c each; packages 24 and under, $2.25 per pound; 25 and over, $2.00 per pound; nuclei, 1-frame, $4.00; 2-frame, $6.00; 3-frame, $7.50; queens extra. One-story 10-frame colony with queens, $12.00. Golden Star Apiaries, R. 3, Box 166, Chico, Calif.

HELP WANTED

WANTED—Another good queen-breeder for season of 1921. W. D. Achord, Fitzpatrick, Ala.

WANTED—Experienced tinner. Good pay, steady work, pleasant surroundings. Address A. I. Root Co., West Side Station, Medina, Ohio. F. M. Sedgwick, Supt.

WANTED—By a large and financially responsible corporation operating in California and Nevada, several experienced bee men and several helpers. Good wages and permanent position 12 months a year. Financial references furnished if desired. Give age, experience and full particulars in first letter. Apply Western Honey Corporation, 703 Market St., San Francisco, Calif.

SITUATIONS WANTED

Position wanted by German-American, aged 42 years, in up-to-date bee business. Has some experience. Understands gardening and fruit-growing. Max Nitschke, 109 W. Division St., Chicago, Ills.

POSITION WANTED—Managing bees on halves in Imperial Valley, Calif., or in Mexico across line from Imperial Valley. Age 40. Wife, no children. 18 years experience.
J. William, Waco, Gen. Del., Texas.

Advertisemcnts Received too Late to Classify

FOR SALE—Annual sweet clover seed, garden grown, hand-stripped, 1 oz., 50c. Supply limited. Order early. S. Rouse, R. D. No. 2, Ludlow, Ky.

FOR SALE—Finest quality extracted clover honey in 10-case lots. Write for prices.
Chalon Fowls & Co., Oberlin, Ohio.

FOR SALE—Buckwheat honey in 60-lb. cans Good quality and clean.
E. L. Lane, Trumansburg, N. Y.

FOR SALE—Italian bees, supplies, new and used hives and supers, 8 and 10 frame. Also excellent farm of 140 acres. Write for information and prices.
Ralph Hibbard, Calcium, N. Y.

FOR SALE—Finest Michigan basswood and clover honey, well ripened and of good flavor, put up in 60-lb. cans and 5 and 10 lb. pails.
A. S. Tedman, Weston, Mich.

PACKAGE BEES and PURE ITALIAN QUEENS. Booking orders now for spring delivery. Circular free.
J. E. Wing, 155 Schiele Ave., San Jose, Calif.

FOR SALE—15 colonies Italian bees, 14 comb honey and 5 brood supers, 40 brood combs, 15 cases of extracting-cans; $175 if taken at once.
John A. Baker, 5947 So. Holmar Ave., Chicago, Ills.

FOR SALE—White clover honey, almost water white. Put up in new 60-lb. tin cans, two to the case. Write for prices.
D. R. Townsend, Northstar, Mich

FOR SALE—Finest Michigan raspberry, basswood, and clover honey in 60-lb. cans,. 25c per pound. Free sample.
W. A. Latshaw Co., Clarion, Mich.

FOR SALE—A fine quality of buckwheat-goldenrod extracted honey put up in 60-lb. cans, two cans to the case, at 20c per lb. Terms cash.
Chas. B. Hatton, Andover, R. D. No. 3, Ohio.

FOR SALE—Vigorous leather-colored Italian queens, famous three-banded stock. Bees in two and three-pound packages. Write for information and prices for 1921. Shipments begin about May 1.
C. M Elfer, St. Rose, La.

I am ready now to book your orders for bees in 2 and 3 pound packages for next May and June delivery, also 3-banded Italian queens and nuclei. Write for price list.
C. H. Cobb, Belleville, Ark.

BEES SPRING OF 1921.—Three-banded Italians. All bees shipped on a comb of honey. No disease. Three pounds of bees and an untested queen, $7.00. Five-pound package and a queen, $9.00. 10 per cent down will book your order. No bees shipped after June 10. L. C. Mayeux, Hamburg, La.

WANTED—Bulk comb, section, and extracted honey. State quantity and price and send sample of extracted. F. L. Hostetter, Osceola, Mo.

WANTED—2000 lbs. best white clover extracted honey. Sample and price.
George Herrick, 645 E. 111th St., Chicago, Ills.

Want bees in Mississippi or Georgia. Name price and full particulars in first letter. Heard & Woodhull, 320 Calvert Ave., Detroit, Mich.

PATENTS Practice in Patent Office and Court
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building.
WASHINGTON, D. C,

INDIANOLA APIARY

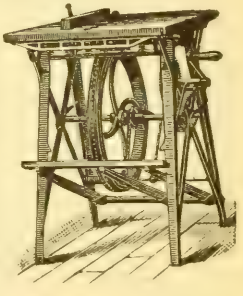
will furnish 3-banded Italian bees and queens:
Untested queens, $1.00 each; tested, $1.50 each.
One pound bees, no queen, $2.00. No disease.

J.W.SHERMAN,VALDOSTA,GA.

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** **THE BEST LIGHT CO.**
306 E. 5th St., Canton, O.

BARNES'
Hand and Foot Power Machinery



This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices.

W F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS

SPECIAL SALE OF
PRIVATE TUMBLERS

6½ Oz. Private Tumbler.

We have a surplus stock of private tumblers, holding 6½ ounces, put up two dozen in a case, including tin tops, at our Philadelphia branch. The cost of these tumblers has more than doubled in the past three years. We offer for a short time the surplus stock, available at 80c per case, $7.50 for 10 cases, $70.00 for 100 cases. Prices F. O. B. Philadelphia.
Send your order direct to

THE A. I. ROOT CO.,
Medina, Ohio.

Notice to Advertisers

All advertisers (except those wishing to advertise small lots, single articles, or "wanted," in such deals as the purchaser can clearly guard his own interests) are notified that they must furnish financial and character references before their advertising will be admitted to Gleanings columns. Such references should be secured from the local banker, and postmaster, and one public official.

Queen and bee rearers must furnish not only the best of financial and character references, but must sign the Gleanings code for the sale of queens and bees.

This notice is given so that intending advertisers may furnish the necessary references when first applying for space in Gleanings and thus avoid delay in having their advertisements appear.

Gleanings in Bee Culture
Medina, Ohio

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

BEES AND HONEY FOR SALE

Italian bees (the kind that fill from 2 to 6 supers), in 8 and 10 frame hives, $12.00 and $15.00 per colony. Choice basswood and clover honey, 30c per lb. in any quantity. Queens after May 1st. S. C. Rhode Island Red chickens. Eggs for hatching in season.

MISS LULU GOODWIN, - Mankato, Minnesota.

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service
BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.

If you have not received 1920 catalog send name at once.

Large, Hardy, Prolific Queens

Three-band Italian only. Pure mating and safe arrival guaranteed.

One, $1.30; 6, $7.50; 12, $13.50; 100, $110.00

Buckeye Bee Co., Lock Box 113 Massillon, Ohio

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. $1.00 per year. Sample copy 10c. Address

Special Crops, Box G, Skaneateles, New York

ATTENTION

Pacific Northwest Beekeepers

We handle a full line of supplies for beekeepers, including Italian Queens. Write us your requirements and for our catalog B. It's free.

Spokane Seed Company, Spokane, Wash.
904 First Avenue

The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

9-oz. Taper Jar

SPECIAL SALE OF

HONEY JARS

We have a surplus stock of taper jars, holding 9 ounces, put up two dozen in a case, including lacquered tin tops, at our Philadelphia branch. The cost of these jars has more than doubled in the past three years. We offer for a short time the surplus stock available at 85 cents per case, $8.00 for 10 cases, $75.00 for 100 cases. Prices f. o. b. Philadelphia.

Send your order direct to

THE A. I. ROOT COMPANY
Medina, Ohio

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 1183

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.,
1133-1183 Pike St., Cincinnati, O.

FREE Samples & Roofing Book

Uncle Zeke's Views

I am a beekeeper and am a goin to write for the bee journals from now on.

The first important beekeepin matter to command my undevided attenshun is the educashun of beekeepers. It is important. There aint no pains too great to go to to educate 'em. The Wisconsin beekeepers educate theirsefs every August at a beekeepers' Chatauquay held at Madison which is on a lake that has a good and attractive swimmin shore. So I secured the accompanying pitcher of Editor E. R. Root and Dr. E. F. Phillips educatin the Wisconsin beekeepers there. They dont look like apiary suits they have on but they must be.

That is all for this oncet.

Uncle Zeke.

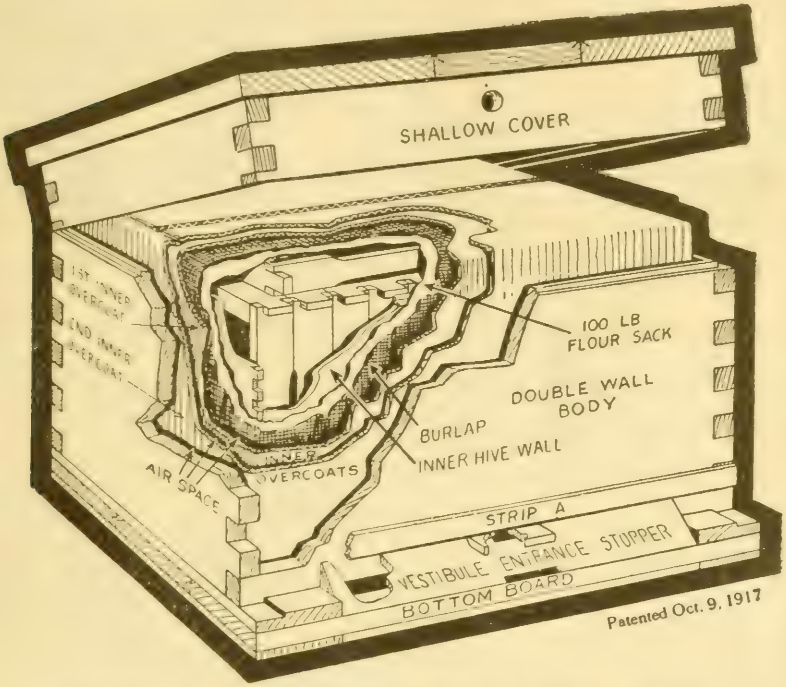
Raise Guinea PIGS - FOR US!

We need men and women, boys and girls everywhere to raise Guinea Pigs for us. We tell you where to get them, show you how and buy all you raise. Big opportunity for money making. Thousands needed weekly.

Easy to Raise—Big Demand Large Profits No special knowledge, experience or equipment needed. They breed the year round—are very prolific—require but little space or attention. Pay better than poultry or squabs—cost less to house, feed, keep, easier raised—less trouble, market guaranteed. Particulars, contract, and booklet how to raise FREE

CAVIES DISTRIBUTING COMPANY
3145 Grand Avenue, Kansas City, Mo.
Largest Guinea Pig breeders and distributors in America.

Winter Problem Solved by the Hive with an Inner Overcoat . .


SHALLOW COVER
1ST INNER OVERCOAT
2ND INNER OVERCOAT
100 LB FLOUR SACK
DOUBLE WALL BODY
BURLAP
INNER HIVE WALL
INNER OVERCOATS
AIR SPACE
STRIP A
VESTIBULE ENTRANCE STOPPER
BOTTOM BOARD
Patented Oct. 9, 1917

Furnished with Jumbo Depth or Standard Hoffman Frames.

WINTER PROBLEM. We have described to you in former issues of this Journal how to prepare bees for wintering in the above hive. The two Inner Overcoats, bottomless corrugated paper boxes, with intervening dead air spaces and inner covering or blankets, close up about the brood nest, are what do the trick. A person could have any amount of blankets fastened up on the walls of a room and still freeze to death, if left in the center of the room without close-up protection or insulation. Many bees are packed for Winter under different conditions, without actual close-up protection.

AIR DRAINAGE. In the selection of a location for wintering this should have careful consideration. A dry elevation, one free from fog and moisture as found on lowlands, should be avoided as much as possible. We have found that bees wintered on the top of a building or highland, such as a peach orchard location, winter nice and dry, while those near a swamp in a sheltered location, which would seem much the best, had a considerable amount of moisture.

Order sample shipment of these hives to try out the coming Winter and be convinced of their efficiency and durability. You can easily set the frames with bees out of other hives into these. Catalog and special circulars sent on request.

A. G. Woodman Co., Grand Rapids Mich., U. S. A.

PLEASING THE BEES--AND YOU

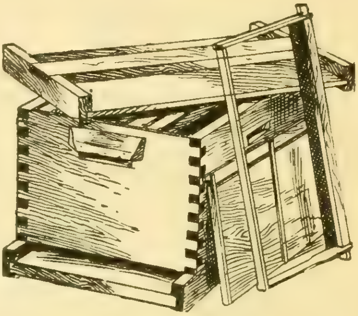
WE humans appreciate our homes—the finer the homes the more comforts and conveniences we put into them.

The beehive is both a home and a workshop. We're wondering just how much bees enjoy good homes.

Our business for over 40 years has been to turn out the best beehives and bee supplies. We want both bees and beekeepers to be satisfied with "FALCON" goods. That's what brings home the honey.

"falcon" bees and supplies are guaranteed to give satisfaction. Send for red catalog.

W. T. FALCONER MANUFACTURING CO.,
Falconer (near Jamestown), N. Y., U. S. A.
"Where the best bee hives come from."



QUEENS, NUCLEI, BEES BY THE POUND,
AND FULL COLONIES

Hives, Supers, Frames. etc., at half price, any thing in the bee line

Prompt Service *Highest Quality* *Satisfaction*

Fellow Beekeepers: If you are in need of pound packages of bees or bee-supplies, let us figure with you; it takes only a two-cent stamp to get our quotations on your wants. If interested in package bees cheap, we can furnish you hybrid bees with pure Italian queens at a very low price; they will build up as quick as pure Italians, and the price is very much lower. We will have several thousand pounds to offer next season and can guarantee to make shipment on time as early as you want them: for example, if you expect to buy one pound of pure Italian bees with queen for $4.50, hadn't you rather buy one pound of hybrid bees with a pure Italian queen for $3.50 and save $1.00 per pound? In six or seven weeks you would have a pure Italian colony at a much lower price. We will be in position next season to rear over three thousand queens per month that are as good as money can buy; our strain is proved and is of highest quality; we guarantee to please you. Prompt service and fair dealings are our reputation; feel assured that we are behind any thing we sell. If you are in need of any hives, frames, supers, packages, etc., send us a list and let us quote you our prices. Our goods will please; they are guaranteed to fit and come up to standard, or your money refunded. Our supplies are the fruit of our long experience. Let us have your orders in advance.

Prices of Our Three-banded Italian Queens for 1921:

	1	6	12
Untested	$1.50	$ 8.00	$15.00
Select Untested	1.75	9.50	17.00
Tested	3.00	14.75	25.00
Select Tested	4.00	23.00	42.00

Write for Prices on 100 or more.

Packages Hybrid Bees with Pure Italian Queen:

1-pound package with untested Italian queen	$3.50
2-pound package with untested Italian queen	$5.25

Italians Guaranteed to Equal Any:

1-pound package with untested queen	$4.50
2-pound package with untested queen	$7.00

Nuclei, Pure Italian:

1-Frame with untested queen	$5.00
2-Frame with untested queen	$8.00

Nuclei are on good combs full of brood with plenty of bees.

We guarantee every thing we sell; safe arrival and satisfaction; you take no risk; customer is the judge. All queens guaranteed to be purely mated. We are now booking orders, with one-fourth down for spring delivery. Place your order now.

The Farmer Apiaries - - Ramer, Alabama

Sell Your Crop of Honey to

Hoffman & Hauck, Inc.

Woodhaven, N. Y.

No Lot too large or small, and Purchase your

Containers, Prompt Shipment

2½ lb. Pails, case 2 doz..... $1.90 each
Crates of 100 $ 7.25

5-lb. Pails, case 1 doz....... $1.80 each
Crates of 100 $11.00

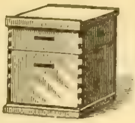
10 lb. Pails, case ½ doz..... $1.60 each
Crates of 100 $17.50

5-gal. cans used 2 to case ... 50c case

WHITE FLINT GLASS JARS, SCREW CAPS

Qt. Honey 3 lb. size 1 doz. cartons $1.25 each
1-lb. " 2 doz. " 1.70 each
½ lb. " 3 doz. " 2.00 each

BEE SUPPLIES



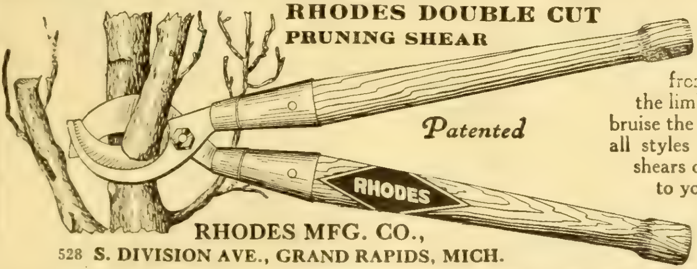
We are prepared to give you value for your money. Our factory is well equipped with the best machinery to manufacture the very best bee supplies that money can buy. Only the choicest material suitable for beehives is used. Our workmanship is the very best. Get our prices and save money.

-:-

EGGERS BEE SUPPLY MFG. COMPANY., INC.

Eau Claire, Wis.

RHODES DOUBLE CUT PRUNING SHEAR



THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.

Sections! Sections!! Sections!!!

We have in stock an oversupply of the following sizes and are offering them at a big reduction, **WHILE THEY LAST. These sections are of a very good grade, and mostly standard sizes.** For lack of warehouse room we are sacrificing them at the following low prices:

No. 2.—4¼ x 4¼ x 1¾, Two Beeway..............per M $10.00
No. 2—4¼ x 4¼ x 1½, Plain or No Beeway.........per M 9.00
No. 2—3⅝ x 5 x 1½, Plain or No Beeway..........per M 9.00
No. 2—4 x 5 x 1 7/16, Plain or No Beeway.........per M 9.00
Mill Run 4 x 5 x 1 7/16, Plain or No Beeway.......per M 9.70

The above prices are net, cash with order. Sold in lots of not less than 1000.

We are well prepared to fill all orders for Bee Supplies promptly. Send us your inquiries and we will be pleased to quote you our prices. Send us your name and address and receive our next season's catalog and price list when same is published.

AUGUST LOTZ COMPANY, -:- BOYD, WISCONSIN

PREPAREDNESS

"The state of being in readiness"
(Webster)

Are *you* ready for next season? If you are, all well and good. If not, take the advice of "one who knows," and send in your order now.

Don't you enjoy the feeling that everything is snug for the winter, and all supplies ready for spring?

Nothing to worry about during the long winter evenings as you sit with pipe and book in front of the fire.

Think over the past season, what a fine one it has been, and how much better next season will be if you are prepared for it.

Do your part; the bees will do theirs.

We allow 6% early order discount for this month.

Write for our catalog.

F. A. Salisbury

1631 West Genesee Street

Syracuse, N. Y.

BEE SUPPLIES

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

The largest and oldest Bee Supply manufacturer in Minnesota can offer you **bee ware** that will keep that "satisfied smile" on your face. Excellent quotations given on frames, spacing or unspacing. Send for my 1920 Catalog and Price List. **Think** it over and in thinking **be wise** and save money by placing your orders **before** the rush is on. *Will Take Beeswax in Trade at Highest Market Prices.*

CHARLES MONDENG
146 Newton Ave., N. Minneapolis, Minn.

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck
The Comb-foundation Specialist
Augusta, Kansas
Established 1899

QUEENS *QUEENS*

PACKAGE BEES

ORDERS are coming in daily for 1921 SHIPPING

My FREE circular gives prices, etc. in detail. Safe delivery GUARANTEED. We ship thousands of pounds all over the U. S. A. and Canada.

Our Fall flow is very favorable for Queen-rearing up to about Christmas. So we can furnish you queens the balance of this year at the following prices:

	1	6	12	50	100
Untested Queens	$1.50	$ 7.50	$13.50	$ 48.00	$ 95.00
Select Untested .	1.65	8.25	14.85	52.80	104.50
Tested Queen ...	2.50	13.50	27.00	110.00	
Select Tested....	3.00	16.30			

NUECES COUNTY APIARIES. CALALLEN, TEXAS
E. B. AULT, Prop.

COUNCIL BLUFFS AND THE NEW AIRCO

Our first year in Council Bluffs under the Root name has been a very encouraging one. We believe that Western Beekeepers appreciate the fact that a manufacturing center has been placed in Council Bluffs for their convenience. Our plans are to make the equipment here absolutely complete in every way, and to be able to serve the Beekeepers of the Great West even more completely and promptly, in each and every detail of their needs.

And to do this it is necessary, first of all, to install AIRCO FOUNDATION mills. We plan to turn out that famous and supreme foundation on our own mills within a few weeks. Send us your combs, or your rendered wax, and we will be glad to work it into AIRCO on the standard trade basis, or remit cash, if you prefer. We are paying, both in trade and cash, top prices, and offering, too, premiums for extra grade wax. Let us send you shipping tags, and quote on your season's need in foundation. For we are positive we can save you money.

For, first of all, we can ship promptly, and over any one of nine trunk lines, to your very door. And how often in honey production is time money!

But, most important of all, the new AIRCO itself is supreme quality, and quality in foundation pays mighty big dividends.

⁂

AIRCO AND THE A. I. ROOT COMPANY
Council Bluffs, Iowa.

A LEADER IN AMERICAN BEEKEEPING

Geo. S. Demuth.

Mr. Geo. S. Demuth, for the last nine years the assistant of Dr. E. F. Phillips in the Department of Bee Culture Investigations at Washington, D. C., and one of the most favorably known beekeepers and beekeeping authorities in America, will become the active editor of Gleanings in Bee Culture the present month, associating himself with E. R. and A. I. Root in editorial work.

Mr. Demuth will bring to his new position very unusual qualifications, not only as a practical beekeeper in his own apiary but as a student and scientist of beekeeping. Few leaders in apiculture have ever had the degree of confidence of the beekeepers everywhere that Mr. Demuth has. It is hardly too much to say that beekeepers generally agree to the proposition that ''when Demuth says it's so, it's so.''

A Step in Advance

Mr. Demuth's coming to Gleanings in Bee Culture is not only for the purpose of making it a still better bee journal and still more useful to American beekeepers, but also to put him in position to serve the American beekeeping public in all our literature. He will have a part in the revision of the A B C and X Y Z of Bee Culture from time to time; in the preparation of revisions of standard beekeeping books, and in the editing of new beekeeping books now planned. All of his great store of beekeeping knowledge will be placed at the service of American beekeepers in whatever we may publish. Just as he has so conscientiously and ably served at Washington the American beekeepers, he is now going to serve them in the capacity of editor of our Gleanings in Bee Culture and our beekeeping books of all kinds.

George S. Demuth needs no introduction to American beekeepers. It is only to introduce him in his new capacity as one of our staff that his name and likeness appear on this page at this time.

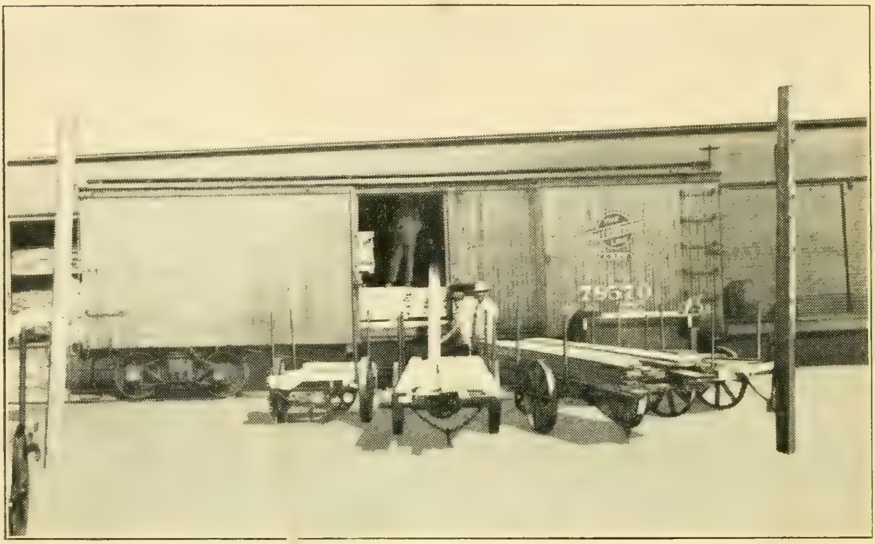
THE A. I. ROOT COMPANY

West Side Station

Medina, Ohio

By E. R. Root, Vice President and Editor of Gleanings in Bee Culture.

KNOTS DON'T COUNT



BEWARE is the motto for Lewis workmen.
It demands first grade pine lumber.
Rigid lumber choice begins at the cars.
It continues until the goods are shipped.
That is the duty we owe to every beekeeper.
Look for this trademark on quality goods.
With us it's BEWARE. With you--"BEEWARE."

Look For

BEE HIVES AND APIARIAN EQUIPMENT
BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN **WIS.** U S A
MAKES THE FINEST.
COPYRIGHT, 1916, BY G. B. LEWIS COMPANY

This Mark

Look for your distributer's name on the front cover of the "Beeware" catalog.
If you have no catalog, send for one. It's free. We want you to succeed.

G. B. LEWIS COMPANY,

Makers of Lewis "Beeware."
Nationally Distributed.

WATERTOWN WISCONSIN

Gleanings
in
Bee Culture

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College

Merry Christmas!

VOL. XLVIII December 1920 NUMBER 12

Better get your list of requirements for next year ready and send it in at once. Prices will be quoted by return mail.

Remember the early orders are shipped without delay. New Catalog ready for mailing about January first, 1921.

MILLER BOX MFG. CO.

201 NORTH AVENUE 18

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"Griggs Saves You Freight"

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NOW FOR THE 1920 HONEY CROP

We will buy it, both Comb and Extracted

We want especially White Orange, White Sage, White Clover, Basswood, Raspberry

Write us what you have, sending samples and prices asked in first letter.

SECOND-HAND 60-LB. CANS

These cans used only once, packed in good cases; 10 cases, 70c; 50 to 100 cases, 65c; 100 to 500, 60c.

BEESWAX WANTED

GRIGGS BROTHERS CO.

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"Griggs Saves You Freight"

SEND TO INDIANAPOLIS FOR YOUR BEEKEEPER'S SUPPLIES

Our stock is new and complete and we are prepared to give the best of service. Send for 1921 catalog. They will be out soon after the first of the year. Gleanings subscriptions also taken.

THE A. I. ROOT COMPANY, 873 MASS. AVE., INDIANAPOLIS, IND.

Season's Greetings and Best Wishes

We sincerely hope that the New Year may be a prosperous one for our friends and customers. Good luck and good cheer.

Being successful is partly a matter of equipment. You can not afford to have any but the best supplies. We have them—have had them for fifty years. We can serve you. Come to us.

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Editorial Staff

Geo. S. Demuth and E. R. Root	A. I. Root	Iona Fowls	H. G. Rowe
Editors	Editor Home Dept.	Assistant Editor	M'n'g Editor

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You'll Need an "Ideal Bee Veil"--True to its name.
$1.95 postpaid in U. S. A.

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Send us a sample of your extracted honey. We also buy comb honey. Tell us how much you have and what you want for it. We pay the day shipment is received.

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We pay you the highest market price for rendered wax, less 5 cts. per pound for rendering charges. Our rendering process saves the last drop of wax for you. "Put your name on all packages."

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"The Busy Beemen"
CINCINNATI, - OHIO.

LEWIS BEE SUPPLIES

Practical Beekeepers stock supplies now. This saves expense and insures against delay in the rush season.

A plentiful supply of 18-oz glass Honey Containers now on hand. Wax and comb taken for cash or trade.

Write Department C.
Western Honey Producers, Sioux City, Iowa.

The enormous demand for
"SUPERIOR" FOUNDATION
signifies highest quality.
Our 1920 output over 150,000 pounds.
Beeswax wanted: For cash, or in exchange for foundation or bee supplies. Prices on request.

Superior Honey Company -:- Ogden, Utah
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

WE will be in our new home January 1st, 1921, and will be able to take care of all our good customers better than ever before. If in the city please call and visit us.

C. H. W. WEBER COMPANY
CINCINNATI, OHIO. 2163-65-67 Central Ave.

THE OLD RELIABLE
THREE-BANDED ITALIANS

Booking orders now for 1921. Queens ready April 1st. My Italians are of an exceptionally vigorous and long-lived stock strain of bees. They are gentle, prolific, very resistant to foul brood, and the best of honey-gatherers. I have sold a good many queens to parties who are using them in stamping out foul brood. Orders booked for one-fourth cash, balance before delivery. Will guarantee safe arrival in the United States and Canada. Descriptive circular and price list free.

	Prices April, May, and June			July to November		
	1	6	12	1	6	12
Untested	$1.50	$8.00	$15.00	$1.25	$6.50	$12.50
Select Untested	1.75	9.00	16.00	1.50	8.00	15.00
Tested	2.50	12.50	24.00	2.25	12.00	22.00
Select Tested	3.00 each			3.00 each		

No nuclei or pound packages of bees for sale.

John G. Miller, 723 C St., Corpus Christi, Tex.

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A. T. SPITZER, Pres.
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MEDINA, OHIO

HONEY MARKETS

There has been little change in the honey market during the last month. It is not a good market, but it is not worse than a month ago. One good feature is that honey is not being "dumped" in such large quantities on the market as to "break it." The quotations below tell their own story:

U. S. Government Market Reports.

HONEY ARRIVALS, NOVEMBER 1-15.

MEDINA, O.: Extracted, 70,000 lbs. from Ohio, 40,000 lbs from Idaho, and 30,000 lbs. from Wyoming. Comb, 1 car from Colorado.

SHIPPING POINT INFORMATION, NOV. 15. . .

LOS ANGELES, CALIF.—Light wire inquiry, movement slow. Carloads f. o. b. usual terms, per lb., 5-gallon cans white orange and white sage 16½-20c; extra-light amber orange and sage 19c, light amber orange 18½c, light amber sage 12-13½, light amber alfalfa 11-17c. Beeswax: Sacked in less than carlots, 40-42c per lb. Prices given represent quotations, practically no sales being made. Wide range due to extremely unsettled market conditions; lower prices are considered possible in near future.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

BOSTON.—Approximately 100 cases from New York arrived since last report. Supplies of old stock light, and receipts of new stock also light. Demand and movement are moderate and market steady. Dealers are generally optimistic, not anticipating heavy receipts. Extracted: Sales to confectioners and bottlers, per lb., old crop California white sage 22-22½c; New York, white clover, mostly 20c. Imported, Porto Rican, amber quoted at $1.10 per gallon. Comb: Sales to retailers, new crop, New York, 24-section cases white clover No. 1, $8.75; No. 2, $7.50 per case; Vermont, 20-section cases white clover No. 1, $8.00 per case. Beeswax: Demand and movement very light, market dull. Quotations to candle, shoe-polish, and floor-wax manufacturers: Domestic, light 35-40c per lb.

CHICAGO.—1 Colorado, 1 Montana, approximately 200 packages by freight from Minnesota and 100 packages freight from California arrived. Demand and movement moderate, market steady. Sales to jobbers: Extracted, per lb, Colorado and Montana, white clover and white alfalfa, 18c; light amber clover and light amber alfalfa, mostly 17c; Minnesota white clover, 18-19c. Comb: Colorado and Montana, 24-section cases alfalfa and clover, No. 1, heavy, $7.00-7.50. Beeswax: Supplies moderate, demand and movement moderate, market steady. Montana and Oklahoma, light 40-43c, dark 38-40c per lb.

CINCINNATI.—Since last report, 1 car Wyoming arrived. Supplies liberal. Most dealers are holding fairly large stock bought at higher prices. Honey price trend is considered downward, resulting in very little demand or movement at present. Prices unreported. Beeswax: Supplies moderate, demand and movement moderate, market steady. Sales to candle manufacturers, average yellow 42-44c per lb..

CLEVELAND.—No carlot arrivals since Nov. 1. Supplies moderate, demand and movement limited, the trade buying only for immediate needs. Extracted, per lb.: Sales to bakers and other large users of honey, 60-pound tins white clover 18-20c; sales in small lots to retailers white clover 23-24c, light amber alfalfa 22-22½c.

KANSAS CITY.—1 car California arrived since last report. Supplies moderate, most dealers having sufficient stocks for present needs. Demand and movement slow, market dull and rather unsettled, with weaker tendency. Sales in small lots to jobbers, comb, California and Colorado alfalfa, No. 1, light $7.00-7.50 per 24-section case. Extracted: Per lb., California light amber alfalfa 18-20c; New Mexico, light amber alfalfa 15-18c.

MINNEAPOLIS.—No carlot arrivals since last report. Supplies light, market dull, dealers buying only for immediate needs because of uncertain market condition. General feeling is that local market will continue to ease off, and retailers are buying in very small quantity. Sales direct to retailers. Comb, Western No. 1, white alfalfa and sweet clover, 24-section cases $7.50-8.00, mostly $8.00. Extracted: Western, 60-lb. cans light amber alfalfa and sweet clover 20c per lb.; some white stock sold at same price. Lots of 10 cans or more offered at ½c less.

PHILADELPHIA.—Arrivals since last report, 1 car western, 3800 lbs. from Florida, 3200 pounds from New York. Winter supplies largely laid in. Demand and movement very slow, market weak, lower tendency. Practically no sales, majority of receipts being bottled.

NEW YORK.—Approximately 8600 lbs. from New York arrived since last report. Supplies moderate, demand and movement very light. Dealers assert that buying at present is being done on hand-to-mouth basis with very few laying in winter supply. Market is very dull and weak at present time and belief is prevalent that it will not improve but rather have a tendency to decline a trifle more. Sales to jobbers, large wholesale grocers and confectioners: Extracted, domestic, per pound, Californias, light amber alfalfa, 13-14c; white alfalfa 17c, light amber sage 15-16c; white orange blossom and white sage mostly 17½c. Imported West Indian and South American refined, mostly 70-75c: few, 80c per gallon. Comb: Very light supplies; New York, 24-section cases white clover No. 1, $8.00; buckwheat $7.00. Beeswax: No arrivals reported since last report. Demand and movement very slow, market weak. Sales to jobbers and large wholesalers, South American and West Indian light, mostly 23-25c, dark 20-22c per lb.

ST. LOUIS.—Arrivals since last report include 2 cars Colorado. Supplies are liberal. Demand is generally reported slow. The recent drop in the price of sugar and curtailment in the use of honey by confectioners are held by dealers to be partly responsible for the slow movement in large quantities. The movement in small quantities is moderate. Sales to wholesale grocers: Extracted, per lb., Mississippi and Arkansas, light amber mixed peach, clover and various flavors 15-16c; Californias, light amber sage and alfalfa 16-18½c; dark amber alfalfa 13-14c. Southern, barrels, too few sales to establish a market. Comb, Colorado, white alfalfa and clover No. 1, 24-section cases, mostly $7.00-8.00. Beeswax: Supplies light, demand and movement slow, market dull, few sales to manufacturers of floor wax and comb foundations; prime yellow 31-32c per lb .

GEORGE LIVINGSTON,
Chief of Bureau of Markets.

Opinions of Producers.

BRITISH COLUMBIA.—Honey is in great demand, but owing to the short crop the supply is limited. At wholesale, the price for extracted honey is 30c per lb., comb 40c per section. At retail, the price for extracted honey is 50c for a one-pound jar, and $1.75 for a four-pound can; comb, 50c per section. Bees have gone into winter quarters in good condition. The majority of beekeepers here are now using packed outer cases in which the bees remain summer and winter, and the result is excellent.—W. J. Sheppard.

CALIFORNIA.—No wholesale demand for honey, but retail is fair. Since election I think conditions will improve. Price of sugar has advanced and honey will be in demand. Many have decided to use honey instead of putting up jams and jellies. This information I have received from consumers. Retail price of extracted honey in small quantities is 25-30c, no comb in market. Condition of bees good, rich in stores, but they quit brood-rearing the first of October—unusually early.—M. H. Mendleson.

CALIFORNIA.—Shot to pieces is as good a term as any to apply to market conditions. In fact, buyers hardly care to make offers. While a few are very anxious to sell, some are holding back, feeling sure things will improve. There is very little demand. At wholesale, the price for comb honey is $7.00 per case. At retail, the price of comb honey is 35-45c per section, extracted 20-25c per pound. Bees have gone into winter in fair to good condition. Most beekeepers report plenty of stores.—L. L. Andrews.

COLORADO.—Comb honey has been in good demand in carlots, and nearly all has been sold and shipped. There will not be enough left to supply the local market. Extracted honey does not move well in carlots, tho local demand is good. About 25 per cent has been sold. At wholesale, the price is 16-19c in small lots; carlot buyers are offering 12-13c. For comb honey I have heard no late reports. At retail the price for extracted honey is 20-25c; comb, 25-30c per section. Bees have gone into winter quarters in very good condition.—J. A. Green.

FLORIDA.—The early honey crop was so small that there was not much trouble in disposing of it. Now we have a crop of palmetto honey (in the hives) and very little demand. At wholesale 15c is asked for extracted; at retail, $1.80 per gallon, $1.10 for five-pound pails. Bees have plenty of honey for winter.—Ward Lamkin.

FLORIDA.—The demand is fairly good. The wholesale price for extracted honey is 20-35c; at retail, 75c to $1.50 per quart. Bees will go into winter in fine condition as to stores.—C. H. Clute.

ILLINOIS.—Demand is quiet. The wholesale price for extracted honey is 20c, for comb 30c. Retail price is 35-40c, for comb 40c. Condition of bees for winter good. Prospect for clover next season is very poor.—A. L. Kildow.

INDIANA.—All honey sold to consumers or to retail grocers. Demand is slower than usual. The wholesale price for extracted honey is 30c in pails to retail dealers; comb, $8.40 per case for No. 1. Extracted honey retails at 35c in pails, comb at 45c. Bees are in excellent condition for winter.—E. S. Miller.

IOWA.—Honey is nearly all cleaned up from the producers, only a dab here and there left. Demand is just normal. The wholesale price for extracted honey is 19c, for comb $7.00 to $7.50 per case of 24 sections. The retail price for extracted honey is 30c, for comb 30-35c per section. Bees have gone into winter in condition fully up to normal.—Frank Coverdale.

MARYLAND.—Demand for honey not so good—moving slow. The wholesale price for extracted honey is 22-24c, comb 27-29c. The retail price for extracted is 35-40c, comb 40c. Late warm fall made colonies light from late breeding.—S. J. Crocker.

MASSACHUSETTS.—Market is quiet, the demand being mighty slow. At wholesale I have heard of no figures, as there is no demand. At retail, the price for extracted honey is 35c a lb. in bulk, 50c in glass; for comb there is no demand, tho it is offered at 50c. The condition of the bees for winter is fully as good as usual.—O. M. Smith.

MICHIGAN.—Honey moving slow in jobbing quantities, but very well at retail. Wholesale price for extracted honey is 18-25c, for comb 35-40c. Extracted retails at 30-35c, comb 40-50c. Bees have gone into winter in first-class condition.—B. F. Kindig.

NEW YORK.—Demand for honey is good from consumers. Some inquiry from bottlers. Wholesale price of extracted honey is 16-20c, comb $6 to $8 per case. Extracted retails at $1.00 per quart can; comb, 30-40c. Colonies are very heavy with honey; some not as strong as usual in bees.—F. W. Lesser.

NEW YORK.—Demand for honey slow. Market conditions poor. Wholesale price of extracted honey is 15c for buckwheat, white 20c; comb $7 to $8. Retail price for extracted 25-30c, for comb 35-40c. Bees have gone into winter in as fine condition as I have ever known, both as to quantity and quality of stores and young bees.—Geo. H. Rea.

NEW YORK.—Demand good for white honey, rather dull for dark honey. Wholesale price of extracted honey is 20-25c, for comb $7.20-$8.50 per case. Retail price for extracted is 30-35c, for comb 40-60c. Bees are in fairly good condition for winter.—Adams & Myers.

OHIO.—Demand for honey has somewhat increased since price is near normal. The wholesale price for extracted honey is 15c, for comb 30c. Retail price for extracted is 20c, for comb 35c. Bees have gone into winter in very good condition, and clover looks good.—Fred Leininger.

TEXAS.—Market conditions are good. Demand is strong. The wholesale price for extracted honey is 18c, for comb 22c. The retail price is 20c for extracted and 24c for comb. Bees are still working on white brush and will go into winter in fine shape.—J. N. [illegible]

TEXAS.—Demand for honey very little. The wholesale price for extracted honey is 18c, for comb 22c. The retail price is 25c for extracted and 30c for comb honey. Bees will go into winter in fine shape.—H. B. Parks.

TEXAS, EAST.—Demand is fairly good. The wholesale price for extracted honey is 16-20c; at retail, 20-30c. Condition for winter is fairly good.—T. A. Bowden.

UTAH.—No inquiry for extracted honey. The wholesale price of comb is $6.00 per case. The retail price of extracted is 20-30c, comb 25-35c. Bees have gone into winter in 100 per cent condition.—M. A. Gill.

WASHINGTON.—Demand in a retail way is fair. The association price at wholesale is 20c, and most of the large producers are holding for this, but the wholesale buyers are offering only 17-18c. At retail, the price is around 25c. Here in the Yakima Valley the bees have gone into winter in good shape.—Geo. W. B. Saxton.

WISCONSIN.—Market conditions appear to be normal at this time. Demand is fair to good. For extracted honey a few beekeepers have offered at 20c for entire crop. Only one beekeeper has offered any large quantity of comb honey, and he asks 32c. For extracted honey at retail, local beekeepers have established definite prices as follows; 35c for less than 10 pounds, $3.40 for 10-pound pails; for comb honey, 45 and 50c. Bees have gathered large amounts of dark fall honey, probably from aster. Only a few beekeepers have fed sugar. Winter losses may be very heavy.—H. F. Wilson.

Too Late for Classification.

WANTED—Extractor immediately. Tim O'Donnell, Jr., 1147 So. Springfield Ave., Chicago, Ills.

Orders booked now for 1921 shipments of bees and queens. Send for descriptive circular and price list. R. V. Stearns, Brady, Texas.

FOR SALE—Honey of a clover-basswood grade, put up in 60-lb. cans, two cans to case, 18c per lb., f. o. b. my station. Cash with order. Sample 20c.
W. M. Peacock, Mapleton, Iowa.

Factory agents sale of 5 and 10 lb. pails, also 5-gal. cans in cleated cases. Get your next season's supply before too late.
Edw. A. Winkler, Joliet, R. D. No. 1, Ills.

Good-flavored light amber honey, two 60-lb. cans to case. Sample 25c.
Adam Kalb, Brooksville, Ky.

FOR SALE—Carload or less Nevada's choice alfalfa and sweet clover extracted honey. Price 17 cents. Nevada Honey Co., Yerington, Nev.

Beeswax wanted. Old combs (dry) and cappings for rendering. Also wax accepted in trade. Top market prices offered.
A. I. Root Co. of Iowa, Council Bluffs, Iowa.

WANTED—To handle bees on share or work for some reliable beeman by the year. Can give good reference. Have had five years' experience.
Emil Vitt, 1945 Grove St., Boulder, Colo.

A Photograph of Dr. Miller.

We feel that many of the friends of the late Dr. Miller would be pleased to have a characteristic photograph of him taken in his late days. We have such a photographic negative of him, with the happiest expression on his face. We would like to present such a photo to every friend and admirer of Dr. Miller, thus establishing a memorial to him in their home. Yet the expense for a single such photo is not inconsiderable at this time, and would be very large in the aggregate if all his friends were to be supplied gratis. But this we can afford to do and will do: send one of these handsome, unmounted photographs of Dr. Miller to all friends of his who care to send us a year's subscription to Gleanings for some beekeeping acquaintance of theirs.

Gleanings in Bee Culture.

ITALIAN BEES AND QUEENS

SATISFACTION GUARANTEED

We solicit your orders for queens and bees for the season of 1921. Prices as follows:

Untested, $1.25; $12.00 per dozen
Dr. Miller's, $1.50; $15.00 per dozen

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A full line carried at all times. Let us quote you on your requirements. Send us estimate of your 1921 needs, we can save you money. Liberal early order discounts. Special attention to Association orders.

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Well made of the best, soft, light cypress which defies decay. Bottoms, covers, hive bodies, hive stands, supers, frames, and foundation. Special discounts on large orders for bottoms, covers, hive bodies and foundation.

Should you desire your outfit cut according to your specifications, write us. Parties desiring large quantities of goods should send for sample of items wanted which will be furnished at moderate price.

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* * *

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SPECIAL PRICES

—ON—

FRICTION-TOP PAILS

	50	100	200
5-Pound Pails	$5.25	$10.00	$19.00
10-Pound Pails	8.00	15.50	

10-Pound Pails in boxes of six, per box, $1.40
5-Pound Pails in boxes of twelve, per box, $1.75

F. O. B. cars Lansing. No early order discounts allowed at above prices. Can make immediate shipment till present stock is exhausted.

Special prices on application on 12-pound and 16-pound comb honey cases.

Five per cent early order discount for December cash orders except as noted on friction-top pails listed above.

⁂

M. H. Hunt & Son
510 North Cedar Street
Lansing, Michigan

WHY THOUSANDS BUY "BEEWARE"

Because the prices are moderate for the workmanship.
Because the materials are the very best obtainable.
Because you are assured of good service---guaranteed.

These goods marked with the "Beeware" brand, are famous for giving the utmost return over a period of years at prices which are never extreme.

Conditions this year are causing many men to change their previous buying methods. Buy cautiously, but be sure you get real quality for your money, the kind you get in "Beeware" only.

It will pay you to write or visit your "Beeware" distributor.
His name is on the catalog we will send if you ask for it.

SERVICE DEPARTMENT

To give users of Lewis "Beeware" better service and information, we announce the employment of E. W. Atkins, who began work at Watertown, November 1. Mr. Atkins is well known to many American and Canadian beekeepers, has worked in large commercial apiaries, and for the past four years has been operating his own apiaries. After taking a degree at the Ontario, Canada, Agricultural College, Mr. Atkins served with the provincial and dominion apiarists of Canada. During the war he was in charge of bee culture extension work for the U. S. Government in Iowa, Missouri, Kansas, and Nebraska. Later he has worked out of the Iowa Agricultural College at Ames for the U. S. Bee Culture Laboratory and is well acquainted with the needs of beginners and commercial beekeepers alike. Address all communications regarding beekeeping to our Service Department, Watertown.

Look For

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BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. USA
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Makers of Lewis "Beeware."
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Factory and
Home Offices:

Watertown
Wisconsin

GLEANINGS IN BEE CULTURE

DECEMBER, 1920

The New Editor Makes His Bow.

IN MAKING my bow as the latest addition to the editorial staff of Gleanings in Bee Culture, I am doing so with the best grace I am able to command under the circumstances. A keen appreciation of the magnitude of the task I am undertaking and of the responsibilities which will rest upon me in this new work is sufficient to prevent perfect composure just now, as I step out before the multitude of readers of this journal.

My own contribution to this issue consists almost entirely of looking on to see how Gleanings is made. Those who have never seen this done can have no adequate appreciation of my effort thus far. I expect to work into the harness cautiously and gradually until I can carry my share of the load; but a little later, no doubt, the readers will hold me responsible to a considerable extent for the contents of Gleanings. While this thought is somewhat disturbing, it is at the same time the very thing which I hope will sustain my effort and help me over the hard places.

I have had before me for some time the vision of retiring to a quiet life, taking care of a few hundred colonies of bees and having lots of time to play; but just when this seemed to be within reach I find myself giving up congenial work in the Division of Bee Culture of the Bureau of Entomology at Washington, D. C., to take up new duties here. The thing that has finally pushed me into this work is largely that of the possibilities of greater service to the beekeepers of the country. If I am able to render this service to the degree hoped for, I shall feel amply repaid even tho I may never be able to stop and play awhile.

Geo. S. Demuth.

* * *

Cellar Temperatures.

BEEKEEPERS who have decided upon a certain fixed temperature for their bee-cellars thruout the winter and have chosen for this the temperature at which the bees are most nearly quiet in February and March may be running the cellar temperature too low during December and January. As the winter progresses the bees, of course, become more and more restless, especially if the stores are not of the best quality so that higher temperatures can not be maintained during February and March, without many bees leaving the hives. During the earlier part of the winter, however, a temperature several degrees higher than that needed to keep the bees quiet in March may result in greater quiescence and so postpone the time when a lower temperature is needed.

* * *

Shelter From Cold Winds.

IT IS NOT too late to provide some sort of wind screen to further protect bees that are wintered out of doors. Beekeepers in the North who winter outside have learned the value of protection from cold winds even when the hives are adequately packed. Further south where bees usually are not packed for winter the wind screen may be even more important. Where the apiary is not already in a sheltered spot the type of wind screen described by Morley Pettit in our September issue is excellent. This is a portable screen made of ordinary lath nailed to a framework. It can be put in place for winter and taken down to be stored during the summer.

* * *

Size of Winter Entrance.

JUST WHAT is the best size for the hive entrance during the winter depends upon so many things that there is no wonder beekeepers do not agree on this subject. Some claim that a generous-sized entrance is necessary because small entrances are often closed by an accumulation of dead bees, while others prefer a large entrance to permit a better circulation of air thruout the hive to keep the combs dry. But when the entrance can safely be reduced in size the added protection thus brought about should result in fewer dead bees to obstruct the entrance, and at the same time should result in a smaller amount of moisture given off by the bees, for the amount of moisture given off by the bees in winter depends upon the amount of their activity in generating heat. Many beekeepers who provide ample packing for winter have discovered that a smaller entrance can be used when bees are well protected than when they are not well protected. The danger of the entrance being closed by dead bees and the condensation of moisture within the hive are both greatly reduced by winter protection. In well-protected hives the entrance can usually be reduced to ¾ inch or even less in width during the coldest part of winter, but in poorly protected hives very small entrances may be dangerous In any case, the entrance should be narrow enough to exclude mice.

* * *

The Present Honey Market.

THE CONDITION of the honey market continues to be puzzling. As must be expected under present conditions buyers are taking honey only as they need it instead of stocking up for future needs. This puts the burden of holding upon the producer instead of upon the buyer. In many cases the producers' warehouses are still well filled with honey, while the warerooms of the dealers are nearly empty, this being quite the opposite of the conditions prevailing during the past two years.

The greatest danger of the present situation lies in the fact that producers in their anxiety to realize on their crop may dump the honey upon the market faster than it can be absorbed instead of distributing it thruout the season. There seems to be no doubt about the market's being able to take the entire crop of honey now on hand before the next year's crop is ready for market, but this season's entire crop can not be dumped at once without serious results. Somebody must bear the burden of holding the stock to supply the needs of the market thruout the season, and, at present, dealers are not willing to bear this burden, and, owing to the money stringency, are unable to do so.

The retail price of honey is still holding its own very well, and the advice given in these columns last month in regard to beekeepers' selling more of their honey locally, where this is possible, will bear repeating here. Local advertising should help greatly in disposing of honey in this way; but the beekeeper, in selling his honey locally at retail, should be sure that he is asking retail prices, for he should receive enough more for his honey when sold in this way to pay for all his time and expenses of selling.

Reports coming to this office indicate that much of the honey produced by small producers in the East has already been cleaned up, and is now out of the way.

* * *

The Quiescence of Autumn.

THIS IS the season of the greatest quiescence on the part of the bees. (The old term in beekeeping, "quiescence," means simply quietness and rest.) The actual wear and tear of bee life is now reduced to its lowest ebb. At no other time during the year are the bees willing to ignore slight disturbances and remain as quiet as they do during November and early December. Their summer's work is done, brood-rearing has been discontinued, the winter's supply of food is conveniently arranged just above and around the clustering space, provided the beekeeper has not taken too much away or disturbed the arrangement, and the bees have nothing to do now but save their energy in order that the colony may live until spring without rearing brood. A strong colony under conditions favorable for quiescence consumes a surprisingly small amount of honey at this season, since honey is the fuel which furnishes the energy, and when energy is not being expended honey need not be consumed.

If the quiescence of late autumn could be kept up during the winter, the bees would not age materially until the beginning of active work in the spring; but the trouble is, the remarkable quiescence, so characteristic of this season, can not be maintained in the same degree for long except under the most favorable conditions of temperature and character of winter stores. From now on many things may happen which tend to disturb this highly desirable condition, and finally by long-continued disturbance it may be upset entirely. In its final analysis, good wintering is simply the maintenance of the greatest possible degree of quiescence until the beginning of spring brood-rearing.

* * *

The Danger in Diseased Combs.

TO RENDER old combs, especially those containing disease, and get all the wax, or within one or two per cent of it, without spreading disease, is not an easy task. The rendering of old combs is almost a trade in itself; and, when a beekeeper undertakes it, he should have the right kind of apparatus and follow the directions given in our A B C and X Y Z of Bee Culture, under the head of Wax, subhead Wax-rendering. If one will follow these directions, and do the work either on a cold day outdoors when the bees can not fly, or in a room well screened so that no robbers can get in, he will get along nicely.

But a large number have neither the inclination nor the ability to do a piece of work of this kind, even when the directions are plain; and, even when they know how, over half of them leave honey smeared over everything where bees can get a taste. Combs are seldom rendered nowadays unless bee disease is either present or suspected. It follows, therefore, that when a beekeeper is careless he defeats the very object of melting up. Thru robbing he spreads disease rather than prevents it.

On account of the messiness of the job, or on account of inadequate apparatus or lack of knowledge, many beekeepers are today pursuing a policy of shipping their diseased or suspected combs to their nearest foundation-maker or dealer; and these combs, often dripping wtih honey, are placed in boxes or barrels that leak like a sieve, with the result that the railroad cars are smeared up with loose honey. When these cars stop on a siding they are quite likely to be visited by bees. If the shipment gets lost or is delayed in transit at some junction where there is a large number of bees, the inevitable result in either case is the spread of foul brood. If the dealer or foundation-maker has bees, they are quite liable to help themselves to the infected honey when the shipment arrives at his platform, and disease will be spread again.

Too many beekeepers do not fully realize the importance of extreme care in the disposition of the combs when treating diseased colonies. The moment such combs are taken from the bees they become more dangerous than they were while still in possession of the bees, unless proper care is used in their disposition.

Even some of the most careful beekeepers have found to their sorrow that it is not safe to store such combs in rooms or containers which are supposed to be bee-tight; for robber bees usually find a way to break in, even if the combs are not exposed by some accident.

If the beekeepers in all cases would melt down all combs containing disease as soon as they are taken from the bees, the problem of their further disposition would be greatly simplified.

Put all such combs into boiling water; skim off the free wax, which will be considerable, and then ship the residue to the foundation-maker to be further treated. This residue, or slumgum, will be perfectly safe to send anywhere, as it will have been sterilized. The free honey will flow away with the wax or mingle with the hot water. This plan involves no apparatus beyond a common iron kettle or wash-boiler. If one has access to a jet of steam, a common barrel will be better yet.

When the combs have been sterilized in this way, and some of the wax removed, the express or freight on the residue, [illegible]lumgum, will be much less, and alway[illegible]fe to ship at any time. The hot water will kill all possible moth worms and eggs, remove the diseased honey, and sterilize the wax.

Such a treatment of combs, whether diseased or not, is a convenient method of taking care of them during the busy season, for it renders the material safe to store until it can be run thru the wax press by the beekeeper, or sent away to a wax-rendering plant.

We wish to urge with all the emphasis that we can command the use of this treatment of all combs from colonies treated for American foul brood. Unless the beekeepers and the dealers combine on some plan of this kind we shall be continually handicapping the industry by scattering bee disease along the railways and general highways, and placing unnecessary burdens of expense on the industry as a whole. The spread of bee disease in the United States is getting to be almost appalling; and we are convinced that a large part of it is due to the careless handling and shipping of combs.

Let us take a case in point. Two years ago we visited a beekeeper in California who showed us a very pretty apiary of newly made factory hives, and the general surroundings looked good. He explained that the inspector had ordered him to burn up his old hives and render his combs, and shake into clean hives. This inspector, instead of giving him the proper instructions, or, better yet, staying there on the job, merely told him to clean up. He certainly did ''clean up'' every beekeeper within range of his bees. Not knowing how foul brood is carried by robbing he melted his combs outdoors. He showed us a big pile of frames out of which he had cut the combs. We asked him if he did not have a lot of robbers.

''Yes,'' he said. ''They came in very handy because they licked up all the old honey.''

He really thought he had done a good job. His bees had all been shaken into new hives on clean frames of foundation; and the pity of it was that every comb in the whole yard at the time of our visit had infection, and he wondered why.

We learned of a case recently where an inspector shipped a barrel of combs, infected with American foul brood, to be rendered in late summer. Mind you, this man was inspector and ought to have known better. The dealer complained that the barrel was dripping with honey. The result can be imagined, because there was a large number of bees in the vicinity. Better, by far, to fire such inspectors and send to each man who has disease some printed instructions as to how to melt combs.

A number of dealers and foundation-makers are willing to receive combs to be rendered into wax. We wonder if those dealers have realized that such a policy will in the end react on themselves. Gleanings desires not only the co-operation of these dealers, but of every beekeeper in the United States, to the end that we discourage the shipping of brood-combs at any time anywhere, whether diseased or not. Bee disease is spreading fast enough without hastening it on in this way.

It should be remembered, perhaps, that in a large number of States there are laws against shipping infected material from one place to another without the consent of the bee inspector. Perhaps the day will come when there will be a federal law against the shipping of such combs to be rendered, or, rather, a law against shipping any combs that do not bear the inspector's certificate; but, unfortunately, that time has not yet arrived.

COMB-HONEY PRODUCTION

The Passing of a Great Era in Beekeeping. Is Comb-Honey Production to Become a Lost Art?

By Geo. S. Demuth

IN the early days of the movable-frame hive, honey was produced for market in boxes which, when filled, held about 10 pounds of honey. These boxes, containing combs of honey just as the bees had built them, were sold in the markets, box and all, this being the comb honey of the period.

The announcement of the invention of the honey-extractor in 1867 soon brought about a change in the type of honey produced to that of extracted honey. This, the first era of extracted-honey production, however, proved to be of short duration because another great invention, that of comb foundation, together with the section box, in 1876, ushered in the great comb-honey era which has had its rise and decline within the memory of some of the older beekeepers of the present day, and which now threatens to become a matter of history, unless something happens to check the present tendency toward extracted-honey production.

It has not been many years since our bee journals were largely filled with articles on apparatus, kinks, and methods for comb-honey production, while but little was said about extracted-honey production. Beekeepers then thought and wrote in terms of comb-honey production as they now think and write in terms of extracted-honey production. Many extensive producers of extracted honey of today were producing comb honey exclusively 15 years ago; and those who have engaged in commercial honey production during recent years have, almost without exception, taken up the production of extracted honey, leaving beginners, amateurs, and only a few professionals in the ranks of comb-honey producers.

This change in the type of honey which is produced for market is not being brought about this time by a great invention, as in the two previous changes, but is being brought about by the enactment and enforcement of a great law. The Federal Food and Drugs Act became a law on June 30, 1906, since which time adulterated honey has practically been driven out of the markets, and the way has thus been opened for the development of a market for large quantities of extracted honey.

This, the second era of extracted-honey production, therefore, may be said to have had its beginning in 1906. The change to extracted-honey production was greatly hastened by the relatively higher price for extracted honey during the past few years; but the movement was well under way long before the disturbance of war-time prices brought the price of extracted honey for a short time practically up to that of comb honey. The tremendous increase in extracted-honey production during recent years, together with the decrease in comb-honey production, has finally resulted in a scarcity of comb honey and a return of something like the former ratio of prices for the two types of honey.

Will Beekeepers Return to Comb-honey?

It is well to note that when beekeepers turned their attention from comb-honey production to extracted-honey production they also rapidly expanded their business far beyond that which they thought possible when producing comb honey. Comb honey did not at that time lend itself so well to extensive production as extracted honey. The beekeeper who formerly operated one or two apiaries for comb honey, and is now operating half a dozen or more apiaries for extracted honey, does not find himself in the mental attitude to change back to comb honey as long as he can sell extracted honey at one-half the price of comb honey, or even less, because he would expect not only greatly reduced production per colony, but would also expect to be compelled to reduce the number of his colonies if comb honey were being produced. The change to extracted-honey production came just at a time when swarm-control measures for comb-honey production on a large scale were being perfected by a few extensive comb-honey producers, but before these methods were successfully applied on an extensive scale by beekeepers generally. Having solved the problem of swarm control in extracted-honey production, the extensive producer sees in the swarming problem a formidable barrier to comb-honey production. In addition to this, the relief from the more exacting requirements of comb-honey production is sufficient to cause many to continue producing extracted honey regardless of a relatively higher price for comb honey. Comb-honey producers, therefore, need not fear much competition from the well-established producers of extracted honey.

Locations and Comb Honey.

Many locations are not suitable for comb-honey production. To produce comb honey advantageously for the general market the honey must be white, and must not be inclined to granulate quickly while in the comb. The honey flow must be fairly rapid and continuous in order that the combs shall be well finished. To attempt to produce comb honey in large quantities for the general market where the honey is mixed or dark, or where the honey flow is slow or intermittent, is not at all advisable. There may be exceptional cases where limited amounts of dark comb honey may be sold locally, or where the comb honey that is poorly finished and travel-stained because of a slow and intermittent honey flow may be sold to better advantage locally than the same honey in the extracted form; but for the general market only the finest grades of comb honey find a ready sale.

Comb-honey Production Limited.

Successful comb-honey production on a commercial scale being thus limited to rather restricted areas, and restricted to beekeepers of peculiar training and temperament, makes of this a somewhat exclusive phase of honey production; and if the old ratio of prices between the two types of honey is restored, the beekeeper who is able to produce comb honey successfully will have a great advantage, not only in the price he receives for his crop, but also in the quicker sale of the comb honey. The condition of the honey market at the present time illustrates well the difference in readiness of sale of the two types of honey which will probably prevail for some time, unless comb honey should so completely disappear from the markets that the demand for it would cease because people have forgotten that there is such a thing. The beekeeper who is located in a region suitable for comb honey and who knows how to produce it to advantage certainly will do well to produce comb honey next year.

Will Comb-honey Production Become a Lost Art?

It would be unfortunate indeed if the art of comb-honey production should be lost because of a lack of masters in this art. Not only will there, in all probability, always be a demand for a limited quantity of comb honey which should by all means be supplied, but beekeeping will suffer a permanent loss if comb-honey production should be entirely discontinued. Much of the information in beekeeping which we now possess, and which we are utilizing in the production of extracted honey, was obtained during the comb-honey era by the solution of the many intricate problems connected with comb-honey production. Producers of extracted honey of today may be thankful that the production of comb honey has afforded so many knotty problems, the solution of which has added tremendously to the richness of our fund of information applicable to extracted-honey production.

[This introductory article on comb-honey production is the first of a series of articles on the same subject to be published in Gleanings during the coming months.]

QUEEN-MATING EXPERIMENTS

This Year's Continuation of the Mating Experiments Begun on Duck Island in 1919

By F. W. L. Sladen

(Aplarist, Dominion Department of Agriculture, Ottawa)

OUR experiments in mating queen bees on Duck Island, at the eastern end of Lake Ontario, were started in 1919 and were continued on a somewhat larger scale in 1920.

The object of these experiments has been to mate together queens and drones bred from certain Italian colonies in the Experimental Farm Apiary at Ottawa that have shown the best honey-producing and non-swarming qualities and from this to develop by selection a strain of Italians possessing these qualities.

Duck Island was selected for the mating station because it is eight miles away from the nearest island (Galboo Island) and over eleven miles from the nearest mainland (Point Traverse, Ont.). Moreover, Duck Island (including the small adjacent Yorkshire Island) covers only about 1500 acres, and there is good evidence that no honeybees exist upon it.

Mating Experiments of 1919.

In the 1919 experiments sixteen virgins and 500 drones were taken in twin nuclei on Langstroth frames to the island on July 23. Twelve of the queens began to lay soon, but six of these produced drones only and the other six varying proportions of drones and workers. The cause of the imperfect matings was not ascertained, but it may have been that the drones were too young or too few. Further particulars of the 1919 experiments will be found in "Gleanings" for February, 1920, pages 80 to 82.

Mating Experiment, 1920.

In 1920, fifteen queens, two of them having emerged on July 19, and thirteen on July 25 and 26, with 2128 drones that had emerged between 9 A. M. on July 20 and noon on July 24, were brought to Duck Island on July 28 just as the basswood flowers were beginning to open. They were brought in sixteen twin nuclei, each containing two Langstroth combs and a space for a third comb.

The weather from July 28 to Aug. 2 was windy, cloudy, or cool. August 3 showed some improvement and August 4 was clear, warm, and still, a perfect day for mating. Very favorable weather for mating continued almost every day until the end of the month.

None of the queens had begun to lay when the island was revisited and all the colonies were examined on Aug. 4, but when examined again on Aug. 14 eleven of the queens were found to be laying and four lost. On Aug. 14, out of the eleven laying queens, seven had their most advanced brood capped, two had large larvae, and two had larvae about two days old. It was subsequently found that all the eleven queens had mated perfectly. In every case large, even patches of all-worker brood were produced.

Nine more virgins that had emerged Aug. 1 and 2 were brought to the island in twin nuclei without more drones on Aug. 4. Seven of these virgins were mated perfectly and two were lost.

It is dense and bushy on Duck Island.

Twelve more virgins that had emerged Aug. 7 to 11, were brought to the island in similar nuclei without drones on Aug. 14. The result was nine perfect matings, two matings producing partly drones and partly workers and one queen lost.

In all, there were 27 perfect matings, two imperfect matings and seven queens lost from the 36 virgins brought to the island. The remaining queen was lost by accident and her workers were not examined.

The workers produced from 26 of the perfect matings were examined; they were lightly colored enough to show that the queens had been mated with Italians. This helped to support the evidence that they were mated with the drones brought because the colonies on the nearest mainland, Point Traverse, Ont., were found to be mostly black bees.

After the removal of most of the queens on Aug. 30 and 31, queens and drones were raised fortuitously in some of the nuclei, and when the nuclei were removed from the island on Sept. 23, it was found that a honey flow from aster was proceeding and that several of these queens had begun to lay.

When the successfully mated queens were introduced into colonies at Ottawa their wings were clipped in a particular way, by which it will be possible to recognize them next spring.

Future Plans.

It is planned to test the island-mated queens for non-swarming and honey production in 1921, and from the best of them to rear queens and drones for mating on Duck Island during the basswood honey flow at the end of July and possibly also during the aster flow in September. Precautions are being taken to avoid inbreeding.

It is also planned to begin next summer the distribution of virgin queens raised from the best Duck Island stock. Special directions for safe introduction to newly formed nuclei will be sent out with the virgin queens, and it will be possible for a beekeeper to raise a sufficient number of drones from a few of these queens the following year to mate a proportion of any further virgins we may obtain. In this way it is hoped that these breeding experiments may soon become of practical value to Canadian beekeepers, and that their value will increase as the work develops.

ABOUT DR. MILLER

Thumb-nail Sketches Furnished by Himself in His Letters to a Friend

By E. F. Phillips

JUST now we all feel sorrow at the death of Doctor Miller, yet we all wish to remember him, just as he was in everyday life and with all of his delightful human characteristics. At the risk both of intruding a frivolous vein into our thoughts at this time and of writing quite personal things concerning my relationship with him, it seems only sharing a joy to record here some things from his letters. It is not the intent of this sketch to transmit the good things in these letters, but rather to allow Doctor Miller thru these notes to reveal his charm as a letter-writer and his warm sympathetic nature.

(1) The first letter that I received from

him was in 1906. At that time he had raised the question as to the age of larvae chosen by the bees for the rearing of queens, when the beekeeper does not interfere.

"I'm afraid you don't know enough to stand up in a straight row and give answers that are correct to the following questions." Then follow the queries indicated, the letter closing with this characteristic bit: "Perhaps that's all the confession of ignorance I should make at one sitting. If you can enlighten me—and incidentally others—I'll think a tiny bit more of you than I do now."

Dr. Phillips and Dr. Miller in a friendly tilt at the latter's home at Marengo, Ill., Aug. 21, 1920. Mr. Demuth (between them) appears to be umpiring. The dear old Doctor is making one of his characteristic left-arm gestures.

On receipt of the reply, he sent this note, which would warm the heart of anybody: "I take no small comfort in thinking that I can turn over to you some of the questions to which I have not yet fitted answers, and I really believe I am yet to learn some things about bees that I never would have learned if you had never been born. May the date of your death be a long while after the date of your birth." Whereupon he proceeded to ask more questions!

(2) Soon after this incident I wrote asking him to loan me a copy of a foreign bee-journal. "I am exceedingly sorry to say that the journal in question has gone the way of all foreign journals that have acquired a certain age—the way of the furnace. You see if I should keep all, the house wouldn't be big enough to hold both them and me, and I'd rather they'd be turned out than I." Later he kindly sent me all the foreign journals as he had read them. It is interesting to note that Doctor Miller learned to read French and German in order that he might not miss what was happening in beekeeping on the other side of the ocean, and this too when he was no longer a young man. Later he wrote on his work with languages as follows: "Just a word that may encourage you in the foreign-language business. If your experience is like mine, you will find that your progress in learning will not be uniform but accelerated. I think I have learned more rapidly in the past six months than ever before. I'm not saying this as an expert; possibly you are a much better linguist than I—if you're not you're pretty poor—but my longer time at it gives me the chance of knowing that one item better than you. Blessings on you."

(3) "I've been watching for a good while to see announcement as to your being at the head of matters apicultural at Washington, and that lately made in the American Bee Journal settled it. Need I tell you how glad I am?

"I wonder if it will seem presumptuous in me to hint at what may be your weak point, the point that may lead to failure, at least that may prevent you from being as useful in your position as you might otherwise be. I hardly think you will take it amiss. Well, my fear is that you haven't sense enough to take proper care of your physical powers. I'm not afraid of the mental part. My advice is that it be your first care to make of yourself just as healthy and perfect an animal as you can. You can take that advice or not; if you don't want it, send it back. I need it myself."

He always enjoyed a joke.

(4) After the correspondence regarding the age of larvae chosen by the bees, several related questions were discussed. "I feel just a little like saying that if you'll

grant me this favor I'll never trouble you with any request again; but I don't want to lie, and I know very well that I'll be likely to want other favors of you: so I make no promise, but please tell me anyhow. I love you.''

(5) When Doctor Miller wrote his treatment for European foul brood, it caused some consternation among inspectors and others; later on, of course, we found that he was right. In a note I ''threatened'' to combat his views, with this reply. ''What you say sounds a little as if you think I wouldn't like it to have you call me down in print. Look here, my much esteemed fellow citizen, if at any time you wish to make me think just a little more of you, just combat publicly or privately anything I may have said that you think not altogether plumb. I'm sure that I haven't tried to spare your feelings: why should you be tender of mine?

''I wonder if you know what an old humbug I am, anyway. I pose as knowing things about beekeeping, and then when I get myself off by myself and meditate on the pile of things I don't know, it's so big that the other pile dwindles down very small indeed. Well, we're all poor critters.''

(6) ''Did I understand you to say that I —that we—didn't appreciate the pictures of the dear little kids and their daddy? That's where you're fooled, altho all the evidence tends that way. Of course, any one with the proper modicum of decency would have thanked you for them long ago. Sadly I confess that I'm a little short on decency, and when badly crowded—as I have been lately—I put off from day to day expecting that each tomorrow will be a little less crowded, and then each day disappoints me: so I'm sure you'll forgive me. You needn't mind giving me a talking-to; my wife has attended to that.''

(7) ''I thot by the old Colorado rules (grading rules for comb honey) there was a minimum of 21 per case. Instead of that it is an average of 21. So I cry 'Peccavi,' which is, being interpreted, 'That's one on me.' ''Humbly yours,
''C. C. Miller.''

''Please understand that 'Humbly' only refers to this time.''

(8) In 1915, I suggested to the editors of Gleanings and the American Bee Journal the desirability of uniformity in the writing of beekeeping terms, and naturally Doctor Miller was included in the informal correspondence on the subject, which was rather extensive. The following is one of the choice letters on the subject. The clarity of the analysis and the insistence on good form are characteristic.

''To the three (3) Conspirators:—

''Here is my creed. I believe in simplicity, and I believe in clarity. I also believe that we must give some heed to the customs of the best writers—and readers. When words are used together in a more or less unusual way as one word, it is simpler to write them without hyphens than with. It is easier to write 'queen and drone trap' than to write 'queen-and-drone-trap.' It is easier still to write 'queenanddronetrap.' With 'queen and drone trap' as I have shown, there is lack of clearness, and danger of mistake. So it is in many other cases, so there must be some way to show the compounding. Mr. Root would dispense in general with hyphens. I would go farther than he and dispense with all hyphens, only that we must have some regard for the general custom. That, I think, is, or at least has been, to use hyphens in compounds until a given compound becomes common, and then drop out the hyphen, leaving the word solid. 'Bee' is not an adjective, and we cannot use it as such without violating both perspicuity and good usage. When therefore it is used in a compound we have the choice of the hyphen or the solid word. I should incline to the view that all compounds in which 'bee' is used might be written solid without waiting longer. That would be a step in a forward direction. It's up to Dr. Phillips' (or Phillips's—I'm not scholar enough to know which is right) conscience to say how far we shall go in advance. Only we mustn't drop out hyphens and leave nothing to tie the parts of a compound together. That way lie confusion and bad usage. Whenever he is a little in doubt whether to have a word hyphened or solid, I hope he may lean to the side of progress rather than conservatism, and save type and space in writing the word solid.

''I'm holding my breath until he speaks. ccm.''

(9) ''Haven't time for a cordial reply, so will save the cordiality till you come.

''Mrs. Miller will have an extra plate and knife for you Monday evening, and you can use knife or fingers—or both.

''Come. C. C. Miller.''

(10) When in 1915 Mr. Demuth and I announced our findings as to the production of heat in the winter cluster, Editor Root was unconvinced, and wrote to Doctor Miller as follows: ''The idea that bees are exercising to keep warm is just a little too much for me to believe. * * * I may come to the conclusion that Dr. Phillips is right, but I am just a little afraid that he has made a mistake.'' Then after going to the bees for the facts, he wrote as a footnote: ''Later: Have just seen both. I am glad to confirm Dr. Phillips. See editorial on the subject in Jan. 15th.'' After Doctor Miller was sure that Mr. Root and I were in agreement, I had the following: ''I always knew I didn't know much about bees, and now you and your accomplices are doing your best to prove what little I do know isn't so. Bad cess to you. I enclose part of a letter from Ernest that I enjoyed and wanted ever so much to send you, but didn't dare. Now that you have interviewed him—or he you—

I think I am betraying no confidence to send it.''

(11) A letter on the behavior of bees in the fall brought this reply: ''Sir—You're an enemy and a fraud. The more I hear from you the more I don't know the little I thot I knew.''

(12) Following the meeting of the National Beekeepers' Association at Chicago in 1919, the last meeting of beekeepers that he attended, I received the following highly prized and characteristic communication:

''The Miller Clan, in conclave assembled, after full discussion, voted unanimously and enthusiastically that the chief factor in making the day of their visit to the Chicago Convention a day to be remembered with great pleasure was one Dr. E. F. Phillips, and it was further voted that the undersigned should notify the said Dr. Phillips of this action.

''In testimony whereof I hereby set my hand and seal on this the 25th day of February, 1919. ''C. C. Miller (seal).''

(13) At one of the visits which I had at Marengo the following incident arose, which shows the way in which by the use of a few words Doctor Miller could speak volumes. His dislike for tobacco is well known to all his readers, and on this occasion, while he was showing me his garden, I stopped to light a pipe, which called forth this: ''Young man, some day I want to talk to you about the use of tobacco—but I haven't time just now.''

One who can look back on 15 years of friendship with a man like the author of these brief extracts is indeed fortunate. There is no better beekeeper than was Doctor Miller, and to this accomplishment he added the striking talent of uniform happiness, which pervaded everything which he touched. The humor of his writings, especially of his letters, was but the manifestation of his satisfaction with life as he found it, bringing happiness not only to himself but to all those with whom he associated.

Washington, D. C.

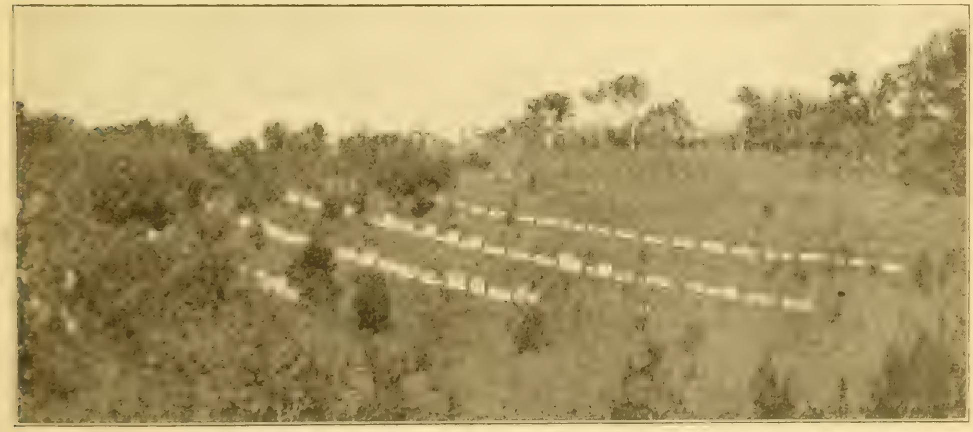
BEEKEEPING IN FOREIGN LANDS

No Foul Brood, No Feeding, No Winter Problem, and Few Swarms in Porto Rico

By Penn G. Snyder

PORTO RICO is a very small spot on the map. It has many peculiar beekeeping problems, caused by the difference in altitude, rainfall, and the trade winds, which blow most of the year. To be exact, the Island is but 100 miles long and 35 broad and contains about 6300 square miles, with an altitude from sea level to over 3700 feet elevation. The hill country in the center of the Island averages about 2000 feet above sea level. A cause of great variation in the flora is the difference in the rainfall, most of which is precipitated by the high hills, on the northern watershed; which has an annual precipitation of from 80 to 100 inches a year. The south side receives about 40 inches only. This causes a great difference in the luxuriance of the vegetation, which naturally means a difference in the honey flows.

The rains act more or less as a stimulant and cause new growth. The trees then shoot a flush of blossoms, and, if the showers do not continue during the honey flow, you se-



An out-apiary in Porto Rico.

cure a fair yield. However, it usually continues to shower. My home apiary is near the town of Aibonito, 2000 feet above the sea level, and the main source of honey here is guama. In the past six years out of about 24 flushes of bloom there was only one period of blossoming when it did not rain more or less.

Amount and Nature of Honey Flows.

Before coming to Porto Rico, I heard all kinds of reports of honey yields. What I actually found after being established here, was an average of less than 100 pounds per colony. I question whether the general average of the Island would be that high. This average is from apiaries in the central hill parts of the Island and from the north, west, and south coasts, totaling over 2000 colonies of bees.

The growth in Porto Rico is tropical.

Different from the States where there are four seasons, we have but two: the rainy and the dry. From year to year there is a variation of these seasons of from one to three months. So there is no certainty when to look for a honey flow.

Also the number of the flows from the same sources are just as variable. I have seen five flowering periods in one year from guama, and in the following year, two good blooms and one very slight one. All this does not make for large crops of honey.

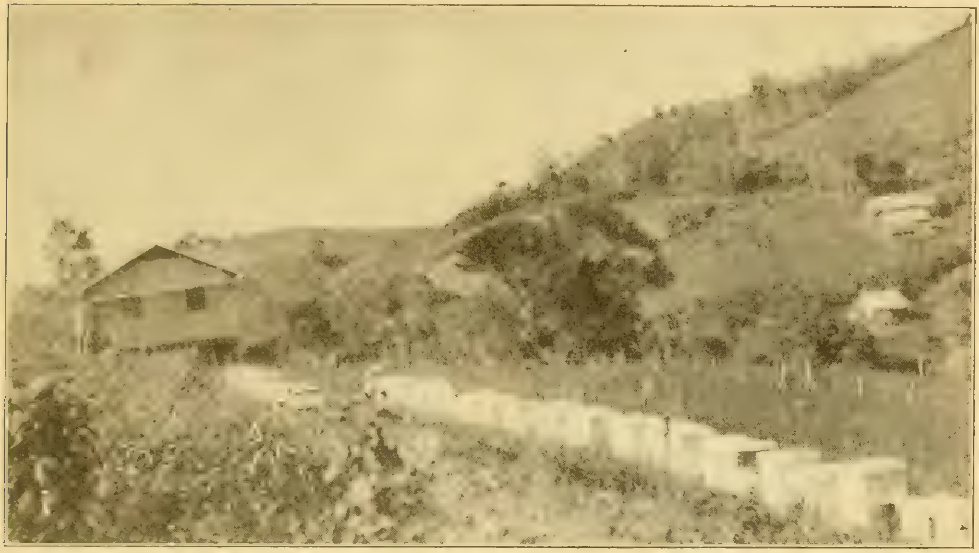
The States honey-producers who can count on their flows usually within a fortnight, can understand what it would mean if the flow should be delayed for two months. How would you keep your bees up to a fair working strength? It simply cannot be done. The best we can do, is to requeen every year and replace each queen that does not seem to be up to the general standard.

The honey flows here are usually rather long drawn out, but on the other hand the nectar is, I believe, not as thick in body when the bees gather it, as the northern honey. At any rate, hives I have had on scales, gain slowly. Two or three pounds per day is a good average during the honey flows.

The honey comes almost entirely from trees and shrubs. Ground flowers, of which there are very few, play an unimportant part in honey yields. You can count off with the fingers of one hand all the main sources of surplus honey. To enumerate them in the order of their value, because of large yields or great numbers: guama, guava, moca, orange, and royal-palm. For minor sources we have coffee, jobo, several varieties of palm trees, pomarosa, aguacate, bananas, and century plant. The only ground flower yielding nectar worth mentioning is a species of daisy whose seed are like the **Biden frondosa**, or beggar's tick of the States. This flower grows all over the Island, more or less.

Extracted Honey and How Marketed.

Practically all honey produced on the Island is marketed in the extracted form, for several reasons. First, we are 1400 miles from New York City, our main market. Second, the honey is of poor quality for table use. Third, the slow flows cause heavy wax production, and consequently thick combs. Fourth, this wax has a rather bitter taste. Fifth, there is a difference of from 20 to 30 degrees temperature from the high



An apiary and honey-house in Porto Rico's hill country.

point of day to the low point of night, thus causing the bees to leave the supers when it grows cool. Last, most tropical honeys are not so well ripened as those gathered in the North, and unless the sections are entirely capped, they are likely to leak by the time they arrive in New York City. The humidity is high on the Island, and the transportation to market by water adds to its quota of moisture. For this reason I may say, all honey produced here is extracted and run into fifty-gallon barrels for shipment. Little or no honey is put into the five-gallon tin containers, on account of the extra cost of cans and a much higher rate for steamship freight. Most of our honey is used by baking companies or shipped to Europe. The larger container not only has the call, but seems to be the best for our purpose. Sales of honey for local consumption do not amount to one per cent of the annual crop.

For the past year, the cost of making delivery of honey to New York City from a coast town was 18 cents per gallon. The container costs 11½ cents per gallon.

Freight from Aibonito to the coast is five cents per gallon, making a total of 34½ cents per gallon. The average price received for honey sold in Porto Rico in 1919 was about $1.15 per gallon. This low price was occasioned by export conditions and foreign exchange.

Little Swarming.

The lack of swarming has been a constant source of wonderment to me, and one I cannot reason out. Our hot tropical sun, slow long-drawn-out honey flows, should spell all kinds of swarming, yet I do not believe ten per cent of the bees on the Island swarm.

Apiary Owners and Employees.

The men employed in the apiaries are usually peons, who are the more ignorant of the population. The better classes do no manual labor. Naturally, the peons speak nothing but the Spanish language. Like the rest of the world at present, the laboring man is in a state of unrest, and is a growing source of trouble. There are but few of the peons who can be depended upon. Yet we must place responsibility on them. If the employer owns several apiaries in different localities, very frequent inspection trips make the expenses prohibitive, on account of poor communication between points across the Island. It is necessary, as a rule, to follow the coast, and for this autos are used. At this date, the cost of peon labor ranges from 90 cents to $1.50 per day. Usually a home is provided free for the laborer and his family, in addition to his salary.

About 60 per cent of the bees here are owned by men or firms, who know little or nothing of honey, bees, or beekeeping. The others are owned by professional beekeepers who receive their entire income from bees, and by owners of coffee or citrus-fruit plantations, who have the bees for pollination as well as the honey they yield.

Modern Hives.

The United States Experimental Station at Mayaguez, Porto Rico, fathered modern beekeeping here. With this example, the new beekeepers followed the same methods used at the Station. Practically 98 per cent of the bees here are in eight and ten frame dovetailed hives. The remaining two per cent are in anything. I am sorry to say the two per cent is being added to rapidly by the peon class, and is likely to prove a detriment to the larger beekeeper.

Number of Colonies and Strain of Bees.

I personally know of over 10,000 colonies here. I believe there are between two and three times that number. There is little doubt there are now too many colonies on the Island, especially in certain localities. Many of the apiaries are composed of hybrids, and some of them are certainly Tartars. Nothing else can be expected when you know there is no thought of improvement of the stock by the average native beekeeper.

Bee Enemies.

One of the great difficulties I have found, is in mating queens. My experience has been, averaging the year, a loss of from 30 to 50 per cent. This makes it rather bad for the "let alone" beekeeper.

Among the enemies of bees, we have bee martin, a bee-eating swallow, and many species of lizards that prey on bees, especially when they are found isolated away from their hives, as are virgins on their wedding flight. In some sections of the Island, ants are a great source of nuisance. There is one variety of ant here which eats all kinds of soft wood. They frequently attack the wood of the hives. Fortunately they can be poisoned when found.

When working with bees we have an occasional surprise party and chase when we see a tarantula make a jump from between the super cover and the metal telescope cover. They sometimes attain a size of from three to four inches across.

Fine Bee Country.

Porto Rico should be of great value to the beekeepers of the United States in shipping early queens and bees to the mainland. There is no foul brood on the Island, and this is a decided advantage to the purchaser. Bees or queens can be reared and shipped any month of the year.

Notwithstanding the difficulties enumerated above, Porto Rico is favored as a beekeeping country. There is no foul brood, no winter problem, no spring shortage of pollen, no feeding, no work with comb honey, and few swarms. In addition to this the Island has an unrivaled climate, making the hill sections a very desirable residential locality.

Aibonito, Porto Rico.

[This article on beekeeping in Porto Rico is the first of a series on beekeeping in foreign countries that we hope to publish during the coming year.—Editor.]

THE BUYER'S PART

Dealers Should Co-operate with Producers in Helping to Stabilize the Industry

By H. F. Wilson

I HOPE the buyer as well as the beekeeper will bear with me in this attempt at an analysis of the beekeeping situation as it is today. Much has been said and written about the probable success of the beekeeping industry, and undoubtedly much more will be said in the future. But truly, friends, it is high time that we quit talking and went to work. Perhaps we are all guilty of being in the position referred to the old Indian chief who journeyed to Washington regarding a matter his tribe was interested in. After remaining for some time without securing results, he remarked that it was "all talk and no do."

Dealers Not Awake to Situation.

The beekeeping game is one of the most interesting "sure-thing" gambles in American industry. It cannot perhaps be compared with the diamond trade or Standard Oil, but I believe that it could be a hundred times greater than it is today without reaching the limit. Why is the industry not larger than it is? Perhaps the beekeeper is partly to blame, but the beekeeper in general is a producer and usually not a dealer. It is possible then that the dealers have not been awake to the situation nor have they been willing to take the leadership in helping to stabilize the industry. The success of the beekeeping industry does not depend upon the beekeeper alone, but upon the honey dealer as well. If the honey industry is to be large, the dealer must do the building. Make it profitable to produce honey and there will be plenty of beekeepers to produce the honey. Advertise and place honey before the people and there will be no limit to the demand. Honey products form another field which needs development, and one that will use hundreds of tons of honey when thoroly worked out.

Beekeeping has too long been a "sideline" with the farmer beekeepers, and honey a side-line with the commission merchant.

Buyers Should Keep Honey at Fair Price.

The secretary of the Wisconsin Manufacturers' Association places beekeeping as tenth among the major industries of Wisconsin, and incidentally remarks that this was the former place held by the brewing industry. Beekeeping will continue to grow because the beekeepers are learning to market their honey at home with a fair profit. Furthermore, the large beekeepers are finding out that they can market their honey without sending it to the dealer. I do not believe that this is a healthy condition, and the situation will grow worse and worse unless the dealer steps into the breach and co-operates with the beekeper to keep honey at a fair price both for himself and the beekeeper.

Local Markets Will Take Care of Crop.

It is not a question of successful beekeeping, but a question of successful marketing. Make a market for the beekeeper, and he will produce the honey. Do not throw the entire load of advertising on the beekeeper, but do your share. I have heard of a bottler who said that the beekeepers were robbers because they asked 20c a pound wholesale for honey; yet there is a steady retail demand for honey at 45 and 50 cents in pound jars and 35c in 10-pound pails.

There is no need to ship a pound of honey out of Wisconsin today, because the local market will take it all if it is properly disposed of. The same thing is true of nearly every other State in the Union.

Profitable Markets Will Increase Crops.

Local advertising is this year selling more than double the amount ever before sold in any one season, and the demand is increasing.

There are a thousand or more splendid locations in Wisconsin where there are no bees, and these places are unoccupied today because there has been no proper stimulus to their being occupied.

Provide a profitable wholesale market for honey, and these places will be filled with bees. Beekeepers will to the end of time continue to sell honey locally; but the best beekeeping territory is far distant from the biggest markets, and the great bulk of the honey will continue to be distributed by the wholesaler. Just how much any one dealer will handle, will depend upon his vision and ability to look ahead.

Dealers Should Co-operate With Producers.

The two biggest supply manufacturers in the United States have found it profitable to hire specialists to go out among the beekeepers and teach them better methods of beekeeping. Why cannot the dealers do the same with marketing?

Suppose the producers, the supply manufacturers, and the dealers were to co-operate in a national research laboratory to test the food value of honey and its uses in food products and trades. There are no scientific records available to show the true value of honey except its sugar content. To compare honey with sugar is wholly unfair. While honey is mostly composed of sugar still there are certain undefined properties in honey that are said to be valuable as a laxative and stimulant. Is it true that honey is a remedy for colds and coughs? I do not know, but why not find out?

Also, why cannot the dealers co-operate in an organized campaign to advertise honey on a nation-wide scale?

Madison, Wis.

THE new apicultural building of the Ontario Agricultural College, at Guelph, Ont., is said to be the finest building devoted wholly to beekeeping in America. It will be the center of attraction at the Ontario beekeepers' convention to be held at Guelph Dec. 1 to 3, when it will be formally opened.

The building is 64 feet 6 inches by 47 feet 3 inches. The basement comprises a honey and wax room with steam heat, water, gas, electricity, a dark room, stock room, bench room, lavatory, and a bee-cellar. The details of the bee-cellar are 14 feet 2 inches by 16 feet, walls 18 inches thick, water-proofed on both sides, two by fours nailed on ends on the inside with inch boards on the two by fours, two layers of insulating paper with a two-inch cork board, and finished with ¼-inch Portland cement. There is a false ceiling 6 feet by 6 feet from the ground, finished exactly the same as the other walls. The outlet at the top corner is connected with the ventilating shaft of the whole building and is controllable. A small inlet in the lower corner near the entrance is also controllable. The floor of the cellar is cement. An elevator in the corner of the basement runs up to the lecture room and also a bench room 26 feet by 16 feet for practical work in assembling supplies.

Under the front stairs there is a natural fumigating room.

On the main floor in the front are a miscroscopic laboratory, small office, and a reading room, together with the general office, the apiarist's office, which includes a fireproof vault for the keeping of records, etc.

The top floor contains a lecture room to seat about 250, seats arranged in semi-circular rows rising at the back to five feet from the floor level. The lecture room will be complete with balopticon, enclosed blinds, sliding blackboard, desk, and observation colonies at the windows for use at class work.

The building is finished in tapestry brick and will cost approximately when finished $60,000.

FROM THE FIELD OF EXPERIENCE

MIGRATORY BEEKEEPING PAYS

Not Difficult to Move Bees, and It Increased the Crop $5.00 Per Colony

Most of my bees I keep in out-apiaries along the swampy lowlands of Cape Fear River above Wilmington, N. C. The early flow there is very good for building up early, and from strong colonies that have wintered well a fair crop of honey is obtained. The principal honey plants are maple, swamp haw, and several varieties of gum. Toward the close of the early swamp flow the gallberries of the higher lands begin to bloom. This is our chief source of honey and I believe that there is none any finer. Hence our advantage in migratory beekeeping, which we have practiced quite a bit lately.

At the time of our last moving I stapled the hives with several supers of honey all together just as they stood. I then removed the covers and covered the tops of the hives with fly-screen wire cloth. The entrances were nailed up solid, but the ends of the entrance closers were moved back to allow the free passage of the bees till all came in at dusk. Then, with smoker, hammer, and lantern, and a few taps at the entrances the bees were ready to load.

I secured my brother's saw-mill crew with large Pepsi-Cola truck. Only two were engaged for the work, but enough of them would join in for the fun to fill the sides and top of the engine so full that on the return trip an old opossum carrying her young, which we passed on the road, stopped and looked back to take new lessons. There were several machine loads of the "curious" that followed up our party. My bees are about all hybrids, and it is needless to say that many of the "curious" got well rewarded for their unceasing efforts to "find something."

We loaded the colonies with the combs parallel to the axles of the truck. Over rough places we came slowly, but we ran swiftly where the road was fair.

I brought in three of my out-apiaries from 15-20 miles each and built up a big home yard, as the gallberry will support a good many at a place, and I can work them all at the central extracting plant. It is all just as easy as hauling supers back and forth. Our truck had good springs, which enabled us to take a swift gait without breaking a comb. The weather was getting pretty hot in June, but by moving at night the bees fared finely and went to work the next day in their new location. A portion of one apiary that I never brought in fell behind the others just five dollars per hive.

Now, brother and sister beekeepers, migratory beekeeping is not difficult. Bees can be easily moved at night in hot weather by giving plenty of air. Migratory beekeeping is young but growing rapidly, and, if we take advantage of it, there are great possibilities within reach of most of us.

Point Caswell, N. C. C. E. Corbett.

DRONES IN MATING TIME

Believes Drones from Each Hive Keep by Themselves in One Flock

Under our circumstances, here in the tropics, it seems to me that during the mating season the drones gather together in flocks in the shade under the bananas or below the big trees which encircle the apiary, which is situated in a clearing; and also that they prefer the denser shade. At least, there the strongest flocks are to be found. How many drones are in a flock, I have never counted, nor thought of; but I would believe about 30 or 40 in a strong flock. It seems to me that the flocks keep in the shade just where the shade and the light meet; here they stay sometimes for hours, with whirring wings, their heads directed towards the hives in the apiary. Now and again they will zigzag or change places among themselves. At other times the flock will sally forth, out in the sunshine, to remain there for two or three seconds, darting right back into the shade again, with a flash or glimpse like drops of flying fire or gold. I have always had the idea that the drones from each hive kept by themselves in one flock; at least, I have observed that drones whose color I had happened to notice as being especially bright, would be found in the same place, and darker drones in other places. I believe that the stronger flocks try to gain the most densely shaded places, and that sometimes battles are delivered about them. Also, that the young queens when venturing forth on their mating trip (sometimes after a few circles) fly straight up in the air for a short distance, and thereafter make for such a shady spot. When the queen nears such a spot, the drones will suddenly sally forth, thereby frightening the queen who will sometimes make for another shady spot, and at other times either drop to the ground or rise straight in the air. In any case other drone flocks will approach, standing around, but to the best of my observation keeping in their own flock. Now and again the hovering drone-flocks will make a perfect uproar, and then quiet down again. The louder the noise, the bigger the drones will appear—most likely an optical illusion caused by their whirring wings. I believe that they are most numerous towards the afternoon, say about two or three o'clock; or perhaps they

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are only most noisy at that time—more so if the weather happens to be dull or sultry. Also, I think that I have noticed that they are more excited on the fourth and fifth days after a batch of young queens have hatched. The reason for this I cannot understand, as I have never seen the drones searching around the nuclei; but I think it is so.

The conditions as set forth by me may be due to the peculiar lay of the land, but I would be glad to have your opinion. Also I hope other readers will let us have their observation. Axel Holst.

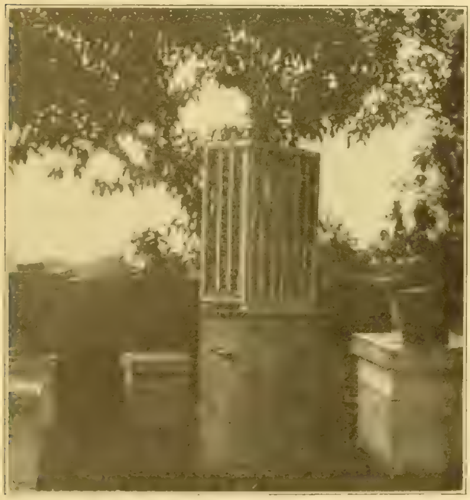
St. Thomas, Virgin Islands.

[On referring this to Mell Pritchard, he says he has never observed that drones from each hive keep by themselves in one flock. But he suggests that if this is true it would be an advantage to have all of one's best drones in one hive, in order to bring out a large flock, which would attract the queens away from the smaller flocks and give better results in pure mating.—Editor.]

THE BROWN EXCLUDER FUNNEL

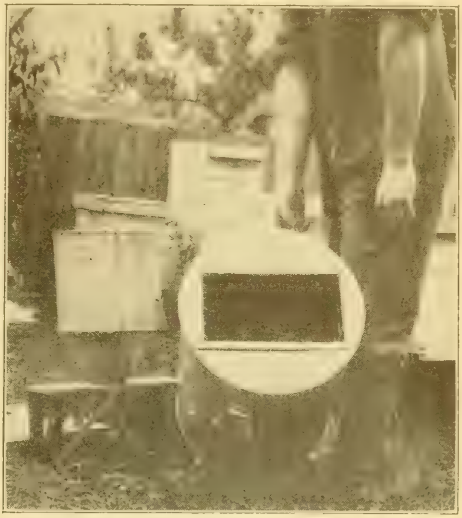
A Sure and Quick Way of Finding Queens When in a Hurry

While working for E. B. Ault of Calallen, Tex., in the spring of 1919, helping rear queens and ship bees, the need of a quicker and easier way of finding queens in large colonies so as to fill pound packages grew pressing, and the idea came to me that a funnel could be made to shake bees thru, using an excluder as a strainer. I drew the plans and told Mr. Ault of it. He at once saw the value of it and had me make two of them to try. They were tried with success, and I am sure each one saved the time of one man in the bee-yard.



A box-shaped wood-and-wire excluder strainer.

The outside shell was made of light tin, as in the illustration. The zinc cylinder excluder worked very well. But we found it too frail. It soon shook to pieces. So we made the bottom of wire excluder and reinforced the sides, but then it would not stand the jar. We then made the funnel square, or box-shaped, which I did not like so well.



The outside shell of the funnel.

While visiting T. W. Burleson of Waxahachie, Tex., I found that he had heard of the funnel, and had made one. He partly overcame the frailness of the zinc cylinder by making it box-shaped out of wood and wire excluder and also constructed it so it would slip in and out of the outside shell, making it easier to find the queen and also to dump the drones out.

I suggested to him the light holes around the bottom of the funnel. He thought the bees would crawl thru the excluder down into the dark room better than out to the light. However, either way seems to work well; but I had rather have the light holes, which also give ventilation.

You have noticed when bees are smoked too much and are excited they will run for the entrance, and I believe when shaken into this funnel they will go thru the excluder better when they think they see a chance to get out below.

After a little practice with this funnel it becomes easy to handle and saves time in finding queens. We shake in the bees and smoke them a bit to rush them thru. The drones as well as the queens are sifted out. Usually you can find the queen among the drones trying to get thru. We were successful in finding queens right along. Those we did not find, no doubt, were left on the wall of the hive, or else on the frames we did not shake. However to make sure not to lose the queen after a good look in the funnel (you can find queens among drones better than bees) we would dump the drones out in front of their hives after shaking each colony, so if the queen was overlooked she would run back into her own hive.

This excluder funnel is not the dream of a night, but was thought of and worked out together with perspiration and bee-stings. It has now been used with success two years.

Mathis, Tex. Pressly S. Brown.

The funnel shown in the pictures eliminates all drones and queens. Therefore the purchaser gets only workers. The men look the frames over as they shake them in, and if they see the queen they put her back in the hive and continue to shake until sometimes they have from six to ten pounds in the large funnel. Of course, if they do not see the queen on the frames, all there is to do is to peep into the funnel and almost always she is seen with the drones and can be put back into the hive.

Transferring from the funnel to the shipping cage.

Mr. Brown made a round strainer for his funnel; but I like the one with square corners better than the round one, as the bees run to the corners and pass thru faster.

Waxahachie, Tex. T. W. Burleson.

MY FIRST YEAR WITH BEES

Three Colonies and 249 Pounds of Honey From a Four-pound Nucleus

When I decided to keep bees I began by talking with a farmer neighbor who had raised bees all his life, but who had recently lost them. I asked, "What method did you use in wintering?" "Oh, I just left them on their summer stands. You know bees don't need any protection. They can stand a terrible lot of cold; but the trouble was the winter was so long and cold that the moisture from them just froze in the hives and killed them off," was his reply. Right there I made the decision that I had this much the best of that fellow. I did not know anything about bees and knew it; he did not know any more but considered himself a connoisseur.

I immediately ordered a bee book and the night that it came midnight found me finishing that book. I put in the rest of the night lying awake to digest it. The next morning before doing chores I re-read the chapters on "Feeding and Making Increase." My thirst for knowledge was just aroused, and so I wrote for a sample copy of Gleanings, and also a catalog. I next subscribed to Gleanings and ordered a bee book, 14 pounds of bees, and supplies for five colonies.

The express company smothered eight pounds of these so that I received, on May 21, only a two-pound and a four-pound package. The weather turned too hot to refill the order, and the breeder returned the money for those lost, also express charges. By the time the bees had arrived, I had the hives on their stands in the orchard with full sheets of foundation, and the feeders in place ready for business.

Foundation being used, it was necessary to keep the bees pulling it out in order that the queen could be kept as busy as possible. Therefore as soon as the bees had drawn out the four central frames, the first part of June, I would take a frame of foundation from the outside and place it in the center of the brood-nest. As soon as this one was well drawn I would again spread by placing a frame of foundation on each side of the middle one, thus leaving two frames of comb and bees on the outside of each and a comb of bees between. This leaves comb and bees on both sides of the two sheets of foundation. In one day the bees would have these sheets well started, and the rapidity with which I could spread my brood-nest was limited only by the number of frames the bees were able to cover.

The next problem was to get the bees started to storing in the supers. I had ordered the shallow extracting supers, but after keeping one of these on for a week

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or so, and no bees having made any advance in that direction, I took it off and replaced it with a full-depth brood-body. By this time the brood-chambers were full, and I selected four combs that were well sealed and placed them in the second story, at the same time spacing the combs of both stories so that I could fill the alternating vacant spaces with sheets of foundation. A week after I had done this, practically every comb in the hive was drawn out, and the bees had a good start in the second story.

Swarming was controlled by an abundance of room, killing queen-cells, and giving plenty of ventilation by means of three-eighths inch blocks under the corners of the cover and inch blocks under the brood-chamber. The four-pound nucleus I divided once by the Alexander method, and again took frames of bees from the daughter and parent hives to make a third swarm, thus securing three colonies from the four-pound nucleus. When I made the Alexander division I had a little ''set-back.'' I did not have a laying queen to put with the daughter colony and had to wait to raise one. I calculated that this delay lost me about 75 pounds of honey, as the new colony dwindled badly during this time.

We had a constant flow from sweet clover from the middle of June until the last of September, dwindling out by the middle of October, with a flow from alfalfa the first part of July and another the latter part of August. Consequently the rest of the summer was spent in supplying plenty of super room. This I accomplished by lifting the nearly full super and placing an empty under it, leaving them all on until I extracted the last of September.

About the first of July I had my first experience in hiving a swarm that clustered in a big cottonwood. Later in the summer I trapped a swarm from a bee-tree, thus increasing the number of colonies.

About this time one of my farmer beekeeper friends endeavored to convince me that foundation was an unnecessary expense. We went out to his old box hive where the workers were dragging out the drones literally by the hundred. I took him over to my six colonies, and after watching 15 or 20 minutes without seeing a single drone, he admitted I was right.

This is the measure of my first year's success with bees: Three colonies and 249 pounds of extracted honey from my four-pound nucleus, 165 pounds of honey from my two-pound nucleus, 150 pounds of honey from a captured swarm, and five extra combs of honey and pollen from a trapped swarm. The honey was put up in quart jars with a nice label and sold to the grocery stores at a good price. Altogether, I sold $72.80 worth of honey besides what we kept for our own family, and 50 pounds that we gave away. The six ten-frame colonies started the winter with not less than 225 pounds.

What, then, are the essentials necessary for success in bee culture? Let me give them as I see them:

First, a good bee range. Second, a mastery of the best bee literature obtainable. Third, a good strain of Italian bees. Fourth, the application of those principles tried and recommended by our foremost beemen, as gleaned from books and magazines.

Shell, Wyo. T. E. Spencer.

MAINTAINING HONEY PRICES

What Can Be Done by Co-operation and Judicious Advertising

Previous to the war and until shipping was provided and the United States entered the war, honey was selling at about half the present price or less. After that time, due to the lack of shipping to carry honey from the West Indies and South America and other parts of the world that were remote from the United States and Europe (which also produced a honey shortage in Europe), and also to the sugar shortage, produced by the same causes and the unavailability of the German sugar supply, there came a great demand for honey. This was also fostered by the issuing of bulletins by the Federal Government, which urged and explained the use of honey in the place of sugar. This was done by the Government until there developed an actual honey shortage, when other, and not as satisfactory substitutes were also recommended.

These conditions caused the price of honey to rise to where it was during 1919 and 1920, nearly twice the previous price. It also taught many people to use and like honey, who had never used it before.

The question is, what can be done to maintain, at least partially, the present prices? I do not expect it to go all the way back to pre-war prices, but if nothing is done, it will go down nearly to that level.

There are several influences that may be brought to bear to prevent this, but before suggesting them let us look at the pre-war conditions. In 1910 there was produced in the United States between two and three pounds of honey per capita, and there was consumed over 80 pounds of sugar per capita annually. With our honey exportations, it is probable our per capita honey consumption was less than two pounds per annum, or about 2½ per cent of the sugar consumption. Therefore our honey consumption was, and still is, too low. There should be produced and consumed many times as much honey as then or now.

Previous to the formation of the Texas Honey Producers' Association honey was being sold by beekeepers in south Texas for five to seven cents per pound, while now they can get around 16 cents, or more. There are two causes for this change of conditions. One was the formation of the Texas Honey Producers' Association, which acted to regulate the activities of the honey buyers, and gave a ready market to the producer, where he could get nearer the real value of his product. The other was the increased demand caused by the war conditions, mentioned above.

If we can keep up the present demand or increase it, and provide a way of getting the producer into close touch with the market, keeping the honey away from the glutted markets, and sending it to the short markets, there will be approximately a continuance of the present prices. These conditions can be secured by judicious advertising and co-operation.

Let us consider the first subject. The American Honey Producers' League gives us an organization that can advertise honey effectively and impartially. We know the results of the advertising campaign put on by the A. I. Root Company, and how their honey by that means was put on the shelves of grocers who never before handled honey, and in sections where it was an almost unknown food. If one company can produce such results, how much greater would be the results from an organization that included the beekeepers from Maine to Texas and from Washington to Florida, completely national in scope! If the American Honey Producers' League has not sufficient funds for a real national advertising campaign, it should be possible to levy an assessment of one or two cents per colony on its members, which, if all supported it who should, would provide a fund of possibly $100,000. I don't know the cost of such an advertising campaign, but it seems to me that would make quite a stir if it were judiciously spent.

Regarding co-operation, the American Honey Producers' League is again the tool to be used. This organization proposes among other things to keep its members posted on production, market conditions, and distribution, and demand. This should prevent congestion in glutted markets, and diversion of shipments to markets that are short; giving an even distribution and preventing price cutting.

We know the good results achieved by the Texas Honey Producers' Association, the Colorado, California and other co-operative organizations of beekeepers. If each section will organize and then join the League, the producers will secure more uniform prices, and ready markets; and the fighting in flooded markets (which, by the way, does the consumer no good) will be almost controlled, except perhaps for small local sales.

Therefore it appears to the writer that the answer to our question is the American Honey Producers' League, and every beekeeper should go into it either directly or thru his association, and advocate a small assessment for general national advertising.

Dallas, Tex. W E. Joor.

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GOOD RECORD OF INSIDE COLONY

Experience in Keeping Bees in an Observation Hive in a Chicago Home

For several years we planned having an observation hive with bees in our home. Living as we do, in the big city of Chicago with neighboring houses 12 and 25 feet from our house and apartment buildings across the street, it seemed something of an undertaking. At last, however, we secured a shining, varnished bee-home for one of our two colonies in the back yard.

We moved the bees a short distance each day until we had them near our blooming flowering currant bush just beneath the southeast dining-room window. Then we raised them a step up and back each day on a scaffolding made of two stepladders and a few boards until we had them over the bush and right against the window. It was about the middle of May when we finally placed the bees in their new home by lifting the frames with the bees from the old hive thru the window into their new home. From that time the bees became an interesting and established part of our family.

We had rested the hive on a support attached to the window sill and fastened securely at the two corners with inconspicuous wires stretching diagonally upward to the window casing. In this way the loosely hanging window draperies were not interfered with, and instead of being an unsightly piece of furniture the hive made a really decorative addition to the furnishings of the room. A writing desk and a chair at one side of the hive and a couch in the adjacent south window made comfortable places to rest while we observed the workings of the busy inhabitants. It was especially pleasant to lie on the couch and listen to the busy hum and imagine we were by the lake side listening to the lapping of the waves. The roar was especially loud at night when all the bees were in the hives veritably working their lives away.

Many were the interesting things we saw

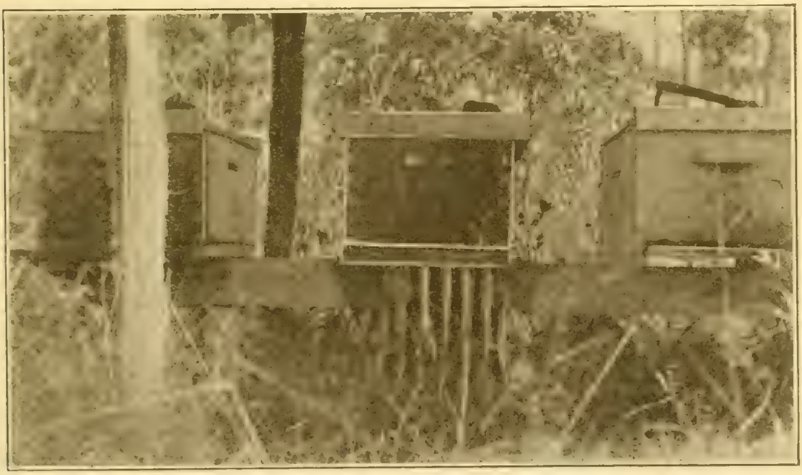
the bees do. Upon several occasions we saw the queen for as long as a half hour at a time going about from cell to cell laying eggs. She would first thrust her head into the cell, then back into it, and deposit the egg. It was interesting, too, to see the bees groom one another and to watch the baby bees turning round and round in the cells until they could break the cappings sufficiently to struggle out and be born into the world of work about them.

Our children friends were particularly interested in the bees and would gaze at them for long periods at a time and ask innumerable questions. The remarks of some of the children concerning our bees were amusing. One little lame neighbor girl said confidentially over the fence one day, ''People think it is very queer to have bees right in the house.'' Another little girl had heard her brother tell about our bees, but hadn't seen them herself. She said, ''You don't have bees right in your house, do you?'' When I replied in the affirmative, she said, ''They don't make honey for you, do they?'' ''Yes,'' I answered, ''they make us a great deal of fine sweet honey.'' ''You haven't any of it now, have you?'' she asked. ''Yes,'' I said, ''we have over a hundred pounds of it left.'' She looked wistful, sighed, and said, ''I wish I were you!''

Last year our inside colony yielded us 125 pounds of as nice white honey as one would wish to see. The back-yard hive, in as equally good condition at the beginning of the season, yielded 75 pounds. This year with the same queen we have had a yield of 92 pounds from the inside colony and a 73-pound yield from the outside hive. It is our feeling that the more even temperature of the house made a more favorable condition and was the cause of the larger yield of the inside hive. Here in Rogers Park with real city all about us our bees must gather and make honey from the fruit bloom of back yards and from white clover and sweet clover of vacant lots and street and railroad sides. The white clover was killed out last winter, which cut down our yield this season.

The bees have required very little care, and we think we have been well repaid for our effort. A half hour's time each week during the midsummer, putting on supers and looking over the brood-chamber to prevent building of queen-cells and subsequent swarming, was the limit of time required. We should be quite lost without our observation hive and plan to have bees in it each season. Stella L. Gill.

Chicago, Ill.



Picture of a beehive with natural combs built beneath. In sending this picture to Gleanings, J. E. Eckert, president of the North Carolina State Beekeepers' Association, says: "There are eight combs built under the hive shown in the picture, and, as the hive is one of eight frames, it is a mute evidence of the bee that the present 1⅜-inch spacing is correct according to the notion of the honeybee."

SIFTINGS

J. E. Crane

WE used to grade queens by the amount of yellow rings on the bodies of their worker offsprings, but E. J. Ladd, Portland, Ore., grades them by the number of frames they will fill with brood. He says on page 673 "8-frame queens now are not satisfactory. Those who know want a 16 to a 20 frame queen."

* * *

The beekeepers of the country are to be congratulated on present prices of honey. While sugar has dropped 50 per cent in the last few months honey prices still hold up fairly well.

* * *

After reading the beautiful tributes of many beekeepers in November Gleanings in Bee Culture, I found myself saying over and over to myself, almost unconsciously, "Dr. Miller died rich."

* * *

One of the pleasant things about bottling honey is that many who at first buy a few ounces of honey in a bottle, write, wanting to know what it will cost them in five, 10, or 20 pound packages, and so our trade keeps increasing.

* * *

I am in full sympathy with J. T. Bartlett, page 661, in his disgust with the retail honey dealer that had the ill manners to tell him how much honey he should use on his table. If there is anything that starts my ire, it is to have a stranger come into my house and tell me what I ought to do and what of his wares I ought to buy. He is wasting his time and mine, too.

* * *

On page 649 the Editor says: "We will admit that sugar stores fed early, and sealed in the comb, are equal to or possibly better during the coldest part of the winter when bees are not breeding; but after that, honey stores are unquestionably better." This is doubtless as near the truth as it is possible to state the matter of winter food for bees.

* * *

I have many times heard beekeepers say that bees consumed more honey in winter when they could fly, because they could relieve their intestines of waste matter, and in consequence require more honey to fill them. It would be better to think of the greater loss of honey when bees can fly freely as the result of increased activity. When bees are active during winter there is likely to be a loss of vitality as well as honey. It is better to keep them as quiet as possible. W. L. Porter of Caldwell, Ida., gives some very interesting facts and experience in burying bees in the ground for winter. This would seem to be a very practical way, especially in a dry section of country. My brother and I tried it over 50 years ago with very satisfactory results, but great care should be taken to see that the pit or clamp is thoroly drained.

* * *

Ah! Mrs. Constance Root Boyden! I am glad you have removed your veil. Thank you. We have had our suspicions for some time. But I just wanted to thank you for making that matter of vitamines so plain on page 669, so we who are not quick to see can understand. I talked with a representative of The A. I. Root Company not long ago, who seemed to know you well, and he told me that you had the genius and enthusiasm of your father running strong in your veins. Well, I can well believe it. Your department in Gleanings proves it.

* * *

If one colony filled that pile of supers with comb honey, as illustrated on cover page of Gleanings for November, it certainly did a big thing. How such an exhibit would take at state or county fairs! Grace Allen, on page 672, tells of making such an exhibit, altho her exhibit was from two hives. Now, wouldn't it be an inducement to offer a generous premium for the largest amount of comb honey from one hive, also the largest amount of extracted honey from a single hive, the honey in both cases to be on exhibition?

* * *

In our postoffice is a notice which reads as follows: "Insure your packages. Value $5.00, 3 cents; $10.00, 7 cents; $25.00, 10 cents;" and so on up. Now, as I understand it, it means, if it means anything, that the post office department will receive packages and will forward them for their regular rates, but will not be responsible for their safe delivery unless they are insured. If lost, stolen, or destroyed, the person has no redress or satisfaction, but will be told, "It was not insured." Now what would we think to see such a notice posted up in an express or freight office? Would it increase our respect for such transportation agencies? Would we not expect such a notice to cover innumerable cases of theft, carelessness, and incompetency? Should we think otherwise because it is a department of the government? Is it not a tacit invitation to careless clerks to be careless? To dishonest clerks and deliverymen to steal? We ship a good deal of honey thru the mails, or try to; but have come to the conclusion that the millennium is not yet here.

OUR FOOD PAGE

CONSTANCE ROOT BOYDEN
Stancy Puerden

SOME years ago an unworthy word was creeping into use in a way that threatened to spoil some of the spirit of the most beautiful holiday of the whole year, that holiday which is dearest when all the old customs and traditions are preserved unchanged. That word was "exchange" when applied to Christmas giving. Some of us "exchanged" gifts with so large a circle of friends that the Christmas planning instead of being a joy was becoming a burden to the busy woman.

But as a result of the press of work during the war, the shortage of household help, the old h. c. of l., that scapegoat for everything, or merely a reaction against a good thing carried too far, there is a change for the better in the observance of Christmas giving. Where we once thought it necessary to spend time and money every year in the selection of gifts for friends who did not need them in the least, we now send cards with a bit of appropriate sentiment, and we spend our time making and selecting gifts for the poor, the lonely, whether rich or poor, and the children, bless their dear hearts. Of course there are times when we wish especially to remember some friend, but that need not start an "exchange" of gifts annually.

Also I believe husbands and wives should not forget each other on Christmas day, altho it may be necessary to make the gifts simple and inexpensive. The amount of love which accompanies the gift is not at all in proportion to the amount of money spent.

DOES the fact that I have been a mother for 21 years and a lover of children for a much longer time entitle me to say just a few words about gifts for children? I am going to risk it.

In the first place, if you really wish to please the children rather than their parents and older friends, give them toys which provide them with something to do either with their hands or brains rather than easily broken mechanical toys. In the first class are building blocks of all kinds, such structural toys as the "Model Builder" or "Meccano," tool chests, workbaskets well equipped, dolls, materials for wardrobes, sets of dishes and cooking utensils for small girls, skates, express wagons, sleds, bicycles, books for either boys or girls, and for older boys apparatus to help in the study of electricity or chemistry. Thru the gift of a telescope and several books on astronomy a boy I know learned more about the stars and constellations than many a college graduate knows who has studied the subject. That same boy amused himself for days at a time with partly worn-out electric batteries and did wonderful things with them before he could talk plain. Later he was the happiest boy in the whole United States one Christmas morning when his older brother presented him with an outfit of test tubes, chemicals, etc. I believe the average normal child with unperverted tastes loves to acquire knowledge, and if you give him half a chance he will educate himself faster than the schools can do it, altho without the schools he would probably grow one-sided.

And children love constructive play. When our older son was a very tiny boy my father gave him a present which has amused more children for longer periods than any other toy I ever saw. It consisted of 250 plain wooden blocks 1 inch thick by 2 inches wide and 4 inches long. Notice that twice the thickness is the width and twice the width the length, the proportions of the common brick. Those blocks have always been kept in a closet off the playroom, and they are still there, altho the youngest of our three children is 13 years of age and we are trying to remember to call the playroom the library. There is almost no limit to the number of interesting things a child can do with those blocks, and judging from my own children and their friends I do not see how a family could be brought up without them.

The child whom I pity on Christmas day is not a member of a poor family who can afford to give him only two or three inexpensive but wisely chosen gifts, but the child whose parents, grandparents, aunts, uncles, and friends vie with each other to find wonderful toys to please a child who has never known the joys of "make-believe," that sad sight, a blase baby.

ONE of the most acceptable gifts I ever received was a beautiful brown workbasket made of the long pine needles of Florida and filled with delicious Florida pecans. What doubled my pleasure in the gift was the fact that the friend who sent it made the basket with her own hands, and the pecans were raised in her husband's orchard.

Not all of us can make pine-needle baskets nor raise pecans, but most of us know how to do something well enough to give pleasure to our friends. There is nothing much more acceptable to a honey lover than a section of perfect comb honey or a jar of clear extracted honey produced by your own bees. A number of years ago, wishing to remember a friend who had moved to a distant city we sent him a Christmas box of honey. This consisted of a section of comb honey, a jar of extracted, a brick of fine granulated honey, an individual service of comb, one of extracted, and a little cake of wax suitable for a workbasket, all daintily wrapped and tied. The next year he sent an order to the firm who had put it up for half a dozen such boxes, one of them to go to his employer, a wealthy manufacturer whose name you would probably recognize if I should give it. The following year an order came from that wealthy man for two dozen special boxes for friends of his. These boxes were filled according to his specifications and cost $10.00 apiece, altho that was before the post wartime high prices. I suppose the honey gift boxes appealed to him because they were unique, a welcome change from the conventional boxes of candy.

One way to give the personal touch which we all prize so much at Christmas is to send a gift of homemade candy, Christmas cakes, or even a Christmas pudding all ready to reheat. The following recipes are some of my favorites, which I have used for years for this purpose and for our children, who think Christmas would hardly be complete without a box of mother's homemade candy. A candy thermometer, while not indispensable, is of the greatest help in candy-making, and you will notice I have given the temperature to which to boil the syrup in each recipe.

The little cakes with the German name were baked by the wife of the editor of Gleanings a month before Christmas last year and were in perfect condition Christmas day.

FONDANT.

1-3 cup white honey 2 cups granulated sugar
½ cup water

Mix, put over fire, and stir only until the sugar is dissolved; boil until the thermometer registers 238 degrees F. or until the syrup will hair from the tines of a fork which has been dipped into it. Do not stir while boiling, and it is well occasionally to wipe the sides of the kettle with a damp cloth to remove crystals. When done pour on to a cold platter or marble slab which has been rinsed in cold water and put in cold place. When blood-warm work it with a spatula or wooden spoon until it is thick and crumbly and then knead with the finger tips until smooth and creamy; pack it in a bowl, cover and set aside in a cool place for several days or until needed to make into candies. When ready for use the bowl of fondant may be set in hot water until it softens enough to handle easily. Any flavor may be used when making into candies. The honey flavor alone is delicious when the fondant is used for stuffing dates.

The use of honey in the fondant obviates the necessity of adding an acid such as cream of tartar or vinegar in boiling the syrup. Also honey fondant will keep soft much longer than the ordinary kind. If it shows signs of forming a dry crust it is well to cover the bowl with a damp cloth, but ordinarily it will keep moist for weeks without this precaution.

CHOCOLATE CREAMS.

The above fondant may be used to form the centers of all kinds of chocolate creams. It may be delicately tinted and flavored and mixed with various kinds of chopped nuts or glace fruits or dried fruits such as dates. A marble slab or large platter is convenient to use when kneading in the flavors and tints. A quick way to form it into centers for dipping is to shape it into a long roll about half an inch in diameter, cut into pieces, press a nut or fruit into each piece, form it into a ball, and set aside to become firm before dipping.

A regular dipping chocolate gives the best results, but cooking chocolate does very well. Many are fond of the so-called "bitter chocolates," but if a sweet coating is desired it may be sweetened by putting in a little fondant, never sugar or honey as either will spoil the texture and cause it to lump.

Melt the chocolate in a shallow double boiler or a dish set in a little larger vessel of hot water which should be kept below the boiling point. A drop of water or even moisture collected by covering the double boiler will spoil the texture of the chocolate for dipping, and it is therefore better not to cover it. When the chocolate is all melted, remove from the fire and beat until it is cool and then quickly dip the prepared centers, one at a time. Professional candy-makers always do the dipping with their fingers, and by withdrawing the finger quickly from the top of the chocolate the little mark is made which shows that it is hand-dipped. Cool the candies on waxed paper. If the chocolate drains off and forms a wide base it is too warm and should be cooled more. Practice is essential to a perfect result, but the candies will taste just as good if they are more than a little irregular.

AFTER DINNER MINTS.

Put a portion of the fondant in a double boiler and flavor delicately with either peppermint or wintergreen. If wintergreen is used it may be colored a pale pink with a harmless coloring. Stir until it is of even consistency and then remove the double boiler from the fire and drop the melted fondant from the tip of a teaspoon on to an oiled paper. If the fondant seems too thick to form candies of the right shape it may be softened by the addition of a very little water stirred in, but the addition of the water is apt to coarsen slightly the texture of the mints. Put in a cool place to become firm.

TAFFY.

1 cup white honey 1-3 cup cold water
1 cup granulated sugar 1 teaspoon vanilla

Mix all the above ingredients except the vanilla, put over the fire, stir until the sugar is dissolved, and then boil to 270 degrees F. or until it is a very hard ball when tested

(Continued on page 762.)

Beekeeping as a Side Line

Grace Allen

THERE is not much to be said, either new or original, about how good a teacher's experience is or high a tuition she charges; it has all been said long ago and many times. But one feels entirely justified in repeating the old remarks. For Experience is a good teacher, and her price does sometimes come pretty high. That is the chief reason for reading and studying, that we may profit by what others have already learned and paid for. But most of us at one time or another are like the woman beekeeper from whom I received a letter a few days ago; we have to learn some things by our very own experience. Perhaps some beginners may benefit from this letter, and learn from some one's else experience, so I am going to copy part of it.

''I noticed in your October department of 'Beekeeping as a Sideline' that your bees had presented you with some honeydew honey this season. I wonder what you did with it. I can't help telling you about our experience. My brother helps me a lot, and we have lots of fun learning things we probably ought to know. We read, too, but some way we always think we can put things over and sometimes we do. But, oh dear, sometimes we don't! This time we did, but we had a time doing it.

''We had given our bees some half-depth frames to get bulk comb honey from, but we put them on too late and most of them didn't get finished, so we just left them on. Then the bees filled them with honeydew and capped it over. I believe they ate most of the clover out, tho, first. We didn't know what to do. We didn't want to leave them on thru the winter. It wasn't because of the honeydew, tho. We knew the bees would have to winter on that because they didn't have anything else. But we didn't think such little combs would do for them to cluster on, and then, besides, we wanted those frames empty so we could get them ready to put on early next spring and get them filled with good clover honey in new comb. So we decided to cut out the honeydew honey and feed it back to them in pans on the hives. Does it sound easy? Well, it wasn't. As soon as we started cutting the stuff out, and that was just what it was, horrid, black, sooty stuff, awfully sickish tasting, the bees must have smelled it and scouted round till they found out how to get in to what we use for a honey-house. I don't suppose that was hard for them to do, because it isn't anywhere near bee-proof. They poured into the room like rain thru a leaky roof. I wish you could have seen us! Honey all over and bees all around. It was like a swarm around us, in the honey and on our sticky hands and all over the pans and boxes we were putting it in. Some of it we just cut into pieces and jabbed the knife thru the cells on each side, and some of it we squeezed. My brother did the squeezing, and you can imagine his hands! Of course we both got stung several times, picked up bees and bumped against them and had a dreadful time. We did have sense enough to wait till late in the afternoon to put it in the hives, but even then it got them awfully excited. We had to contract entrances and pile grass up in front of them and do all sorts of things to try to stop the robbing. The next day we looked in the hives to see if they had cleaned it up. The robbers followed us around and jumped on every hive we opened, but we kept on going anyway. We had to, we had started something and we had to finish it. In every hive the top part was always cleaned up fine, just dry comb left, but down underneath where they couldn't get to it, and a lot of honey had drained down to the bottom, it was a sight. The bees were over it so thick we couldn't get them out in any way. We stirred it up, bees and all, to let them get to the bottom. You can't think what a sickly, crawly mess it was. A lot of bees got killed and we wondered how many queens were in it getting killed too. I suppose we'll find that out next spring. We had taken the honey-boards off first. That was silly, too, wasn't it?

''I remember once you said that folks that love bees enjoy everything that happens, even the things that come from their own 'apiarian sins.' If you hadn't written that, I don't believe I'd have dared admit how I laughed right thru this whole 'apiarian sin' of ours. But I can promise you that we won't feed back any more honey by cutting it up or squeezing it.''

That was assuredly a disconcerting experience. It would have been better to extract the honey and feed it back in friction-top pails. As for the queens, I don't know whether they would come up into that comb honey or not. If brood-rearing was still going on, quite surely not, having plenty of room, as shown by the fact of needing feeding. But after brood-rearing stops, they seem to roam about the hives more. We had a disconcerting experience of our own along that line.

* * *

I always look thru the yard in late summer or fall to make sure of each colony's having a queen. This fall I was a little late and what was worse, aster had yielded practically nothing, everything was dry and brood-rearing had completely stopped in most of the hives. Finding neither a queen nor a sign of a queen makes it hard to know for sure whether a colony is queenless or not. But presently I found one queen, then another, on the ground. They had evidently run off the under side of the super cover. Then another on the lower side of a queen-excluder that was being taken off; and still others in about the same way, as tho, having nothing to do below, they were roaming around at the tops of the hives, or ran up there as soon as smoke was blown into the entrance. One was dead in a ball of bees on an alighting-board, another was on the upper side of the super cover of a hive that had not been opened, tho I've no idea in the world where she came from nor how she got there. She took to wing, and that's the last I ever saw of her. I never had such trouble before, and did not try to finish. Robbing was bad, too. Then a heavy cold overwhelmed me, and I had to give up a little requeening I had planned to do on some blacks we had bought and a few other odd colonies. We are wintering on almost solid honeydew, except a few colonies that were given sugar syrup made from a hundred pounds of granulated sugar we had bought for 13 cents when it was retailing for 27 cents—because it was tainted with kerosene. What, oh what, will we find next spring? Instead of the good record of last March, every colony alive and every one queenright, there will likely be a loss.

* * *

One experience that we had this fall was amusing. The only wax we have ever rendered has been from cappings, in the solar wax-extractor. This fall we had a little comb we wanted to get the wax from. Our small solar isn't of much help with comb, and there was scarcely enough to pay to send away. And ever since I started reading beekeeping literature I have read about the very amateurish method of boiling comb up in a sack and getting the wax off the top of the water. And I have looked at many pictures of this time-honored operation, always with a pair of cut-off hands rubbing the sack of combs between two sticks. And always the authors have assured us it was not very efficient, would not get all the wax, and was very mussy, yet had been used widely as a makeshift when there was only a small amount of comb. We seem fired with the ambition to try all traditional beekeeping "stunts" once. So on a sunny day in late October, we made a fire in the back yard, between two piles of bricks, and set over it an old boiler which the beekeeping department had previously acquired from the laundry department by the simple means of declining to clean it up after having boiled combs in it. "Oh, we'll buy a new one and charge it to the bees," we had declared in spirited and unanimous refusal. So on this autumn day, we put into it a sack of comb, covered it with water, weighted it down with bricks, and prepared to prod it occasionally with sticks. While it was slowly heating, we were doing other things, tho I kept wandering back to exult over a drop or two of wax showing on top. "Boiling yet?" Mr. Allen asked as he joined me once. It wasn't, so he put on more wood. "That ought to bring it," he remarked and we left it again. It brought it all right. I was out near one of the rambler roses that was hopefully putting out dainty little October blooms, when the realization was borne in upon me that for several minutes there had been a peculiar hissing sort of sound coming from somewhere. I started for the fire and I wish you could see what I saw. The boiler itself was scarcely visible. In the midst of leaping flame there was a waxy mass of seething foam boiling up over in a hissing sheet. "Oh, come quick! Come quick!" I screamed helplessly, in fine disregard of grammatical niceties. But Mr. Allen, having just gone to the fartherest end of the cellar, heard nothing and the wax poured on out into the fire like an oily Niagara into a fiery furnace. And I kept on screaming. Till at last I remembered the hose lying near and sent a stream of cold water into the boiler, whose contents became quiet for a minute, then started climbing up the sides again. More water, this time on the fire also. "We've lost all our wax!" I wailed as Mr. Allen came up and calmly raked the rest of the fire from under the boiler. But not to be cheated from doing as the hands in the pictures do, we fished out the sack, rubbed it with sticks, squeezed it as dry as as possible, and tossed it out. The rest we left till the next day, when we found a disreputable-looking boiler, with a fairly thick sheet of somewhat dirty wax. So, in spite of its loss, that afternoon shows on its credit side two or three dollars worth of wax, a little experience, a little fun, and a memory to smile at in years to come.

* * *

A few days ago I met an intelligent woman who is prominent in a local poultry organization where progressive methods of chicken-raising are upheld. Yet she told me that when she decided a year or two ago to get some bees, she let a man convince her that "those patent gums" weren't any good. "He made me two gums himself, like tall boxes all fixed up with little sticks across, and only charged a dollar apiece for them, and he gave me the bees to put in them," she said. "But I've never got any honey."

* * *

(Mrs. Allen, if you could have seen Mr. A. I. Root carrying your beautiful poem on Dr. Miller in the October Gleanings about the office here, and reading it aloud to us, with tears in his eyes, you would have been intensely gratified. Over and over he would repeat the last line: "Because you lived and loved, and smiled, and died." It was indeed a beautiful tribute.—Editor.)

FROM NORTH, EAST, WEST AND SOUTH

In Southern California.—The Orange Belt Honey Producers' Co-operative Exchange held its annual meeting Nov. 1. There was a large attendance; much enthusiasm was shown, and, in general, the members were well satisfied. General Manager Millspaugh was present and gave a very encouraging report of the progress of the Exchange. The election resulted in the selection of Sam Nealy and R. E. Fairchild as members of the board of directors. Immediately after adjournment the board organized by electing L. L. Andrews, president; R. Powell, vice-president; and R. E. Fairchild, secretary-treasurer.

Generally speaking, the bees are going into winter in good condition. We find that some colonies need help, and we give it to them by taking combs of honey from those that can spare them. In this way we calculate that all of the colonies we examine now will be left in condition to go until February or early March. All of these will not need attention even then, but some colonies will have consumed all of their honey. There seems to be no way of telling just why one colony will consume so much more honey than another, both apparently being of the same strength and sitting side by side.

Each year finds the beekeepers of the West taking a more active part in fair exhibits. Too much encouragement cannot be given to this long-neglected branch of our industry. It does one good to watch the backwoods beekeeper and see how he straightens up and a smile comes over his face when he first arrives at the beekeepers' exhibit. Sometimes he says aloud and sometimes to himself: ‘‘I have better honey or wax than that at home. Next year I am going to bring some of mine, too.’’ Next year arrives and it is the same old story. Which class are you in—the one that furnishes material to help out, or the one that is always going to do so? One of the best ways to advertise is by showing the consumer just what we have. The work of getting the exhibit together and placing it usually falls on the same few. But, as the years go by, more and more of the beekeepers are ready and willing to do their part in most lines. For the last five or six years the Riverside County club has placed an exhibit at the Southern California fair at Riverside. San Bernardino County most years has been a close competitor. This year both clubs outdid anything that they had ever shown in the past. One very interesting feature was a large bear in a cage. All of the children—as well as the ‘‘grown-ups’’—wanted to see the bear eat honey. Too much time cannot be used in making the exhibit attractive. The time to begin to get the articles ready for the next time is just after the fair closes. Many of the things are ready to use year after year, but something new always draws attention. Anyone who can design something unique and attractive will help to get the people interested in the exhibit.

Our state legislature meets this winter and while we have a so-called state law governing our beekeeping interests, it is far from up to date. Whenever we talk of amending or passing a new law there immediately springs up opposition. If we are going to keep pace with the great progress the industry has made the past ten or a dozen years, we certainly need a state law that will give the beekeeper, who has seen the possibilities of the business and moves his hundreds of colonies from one section of the State to another, the same chance to carry on his work, unhampered, as the one who keeps 50 colonies in his own back yard. Think this over, you California beekeepers, and let us get together on it.

While the Exchange is still maintaining the same prices as set last June, many outside buyers are offering much lower prices—some as low as 12 cents. The selling of our products before the day of the Exchange was one of the most incompetently handled phases of the game. Many other branches of agriculture are much more easily welded into a state or national organization than ours, but none are more deserving than the beekeepers of the right to get their products to the consumer, with just as little middleman's profit as possible. With all of the orange honey of the State sold and the sage going fast, things look prosperous for our organization. L. L. Andrews.

Corona, Calif.

* * *

In Iowa.—We expect to finish extracting the fall crop tomorrow, Nov. 4. Take it on the whole, the season has been very favorable for the production of honey. The clover crop was fully up to that of last year and of excellent quality; but the fall flow, which with us is mainly from the heart's-ease, was somewhat disappointing, notwithstanding its bright prospects early in the fall. Too much cool, rainy weather just when the flow was at its best was the main reason. Conditions were much the same in the central part of the State.

We had plenty of rain all summer. In fact, almost too much at times for the clover flow, but it had its advantages in keeping the white clover in the pink of condition all summer. There was a time this fall when it got pretty dry. So much so that we were afraid it was going to hurt the clover; but the recent rains have freshened it up, and it now looks as fresh as ever, and from all appearances will go into winter quarters in normal condition.

The larger beekeepers have tried to maintain, with perhaps in some instances a slight rise, last year's prices. Generally speaking, the price asked is 25c for extracted in a wholesale way, and 30c in retail lots. We know of one beekeeper who sold his crop early to a jobber for 25c. The most we have been offered in a jobbing way was 20c.

We sold our comb honey at $7.00 per case at the apiary without a case, and $7.50 where it was shipped out. The demand for comb has been good, livelier than last year, and the comb in these parts is cleaned up. But there is quite a little extracted honey in this State still in the hands of producers, and from several letters received from Dr. Bonney (the president of our State association) inclosing letters from large producers and from our own experience with our mail-order trade, the demand is nothing like the past three years. Naturally we might expect some reaction, but there is no dodging the fact that the demand is very moderate. The local store trade is on the blink. Frankly we have been too busy to give this trade the attention we usually do, but in some of our territory there has been some honey offered by other beekeepers in 5-pound pails at 18c, and some comb sold to the merchants at 20c per pound.

This is one reason why the market is dull. Merchants and others soon learn the wide range in prices between beekeepers and consequently are afraid to buy in any quantity, if at all. Especially is this true this time, with the price of everything the farmer has to sell going down, and with the upset of the markets in general.

If there was only some way to educate some beekeepers as to what it costs to produce honey, and what they should get for it, considering the high cost of labor and supplies, money invested "plus a profit," I wish some guy would go after it.

If we beekeepers ever get down to brass tacks we must stabilize our prices in some way, and do it mighty soon. Don't understand me to mean to boost prices beyond reason, for that would only act as a boomerang. But there is no good reason why one beekeeper should ask 30c for his honey and get it, and another in the same State, yes county, asks 18c—and, of course, gets it. This is simply running the knife into the other fellow's back, and at a very material loss to the one who does it. This has always been the worst drawback in the local markets.

By the time this reaches your readers the bees in this part of the State will in all likelihood be snugly put away in the cellar, as that is the general manner of wintering in our locality. In all the time we have kept bees we have never wintered a colony out of doors. Some of the more careless farmer beekeepers winter outside with no packing, but it is not thought of by those having much at stake. If colonies are to be wintered outside of a cellar, some manner of packing should be provided, as the winters of eastern Iowa are generally too severe to winter without, and expect bees to come out in the spring strong and ready to gather a honey crop when it arrives.

Center Junction, Ia. W. S. Pangburn.

* * *

In Minnesota. — The annual meeting of the Minnesota Beekeepers' Association will be held in Minneapolis on December 9 and 10 in connection with the State Horticultural Society, the date having been changed from the 7th and 8th on account of failure to secure the room for holding the meeting at the time originally announced.

Minnesota beekeepers have good reasons to feel that this has been one of their best years. It is true that many lost heavily in bees last winter and spring, but the honey flow has been abundant in most localities. More alsike clover is being sown every year and the prospect for the future of beekeeping in Minnesota is very promising. The farmers are putting in also more alfalfa; but some claim that it does not yield nectar in this climate, while others say that their bees produce considerable honey from it. Does it make a difference whether the seed sown has been produced in this climate or in a different climate? Can any one tell us? The yield from basswood was exceptionally good, and, as a consequence, many colonies that wintered poorly and were too weak to gather a surplus from the clovers did bring in a 50-pound or larger surplus from basswood.

I feel that I can assure the beekeepers that foul brood is not increasing in Minnesota. This year the state inspector and his deputies inspected 33 per cent more apiaries than last year and found 34 per cent less colonies infected with American foul brood than last year. Of course, it will be impossible to entirely eradicate American foul brood as long as infected honey and bees are shipped into the State from outside; and, inasmuch as it is practically impossible to keep infected honey out, we may count on there always being American foul brood in the State. But I am thoroly convinced that it can be so far controlled as to cause very little loss. I trust that what I have said will not cause any beekeeper to become careless, for eternal vigilance is the watchword. I agree most heartily with what J. A. Green said in Gleanings (September, 1919, page 596), "While I am not afraid of the disease, I have a wholesome respect for it and regret that some people believe it an easy and simple matter to control foul brood." The inspector has had the hearty co-operation of the Minnesota Beekeepers' Associa-

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tion and the Bee Culture Division at the University Farm, as well as the beekeepers thruout the State, for which he feels very grateful. This fine spirit of co-operation and the kindly offering of helpful suggestions wonderfully lighten the burdens and lessen the difficulties of the work of the inspector. And while writing on this subject I wish to say that after having served six years as inspector that I have no sympathy whatever with the views now and then appearing in the columns of the bee journals advocating that the inspector's work should be limited to instruction. I think that it will be a long time before the beekeepers of Minnesota will ask to have the authority of the inspector nullified. If we had been compelled to work under the suggested limitations last year, there would be no such report this year as we are able to show. In several instances whole communities would have become infected, if we had been compelled to use the roundabout methods so strenuously insisted upon by some idealists. If the Minnesota law is changed I think it will have more teeth in it, certainly not less.

The bee culture division of the University is planning greater and larger things for the coming year. Prof. Jager, assisted by Prof. Matthews, plans to rear a much larger number of queens next year than usual. He is also planning to test the Jumbo hive in an apiary of 40 to 50 colonies. Besides this Prof. Matthews will conduct an experimental project with 18 colonies, 12 being in square hives of Jumbo depth—one-half of them with 1½-inch spacing and the other half with 1⅜-inch spacing—and six colonies in the standard Hoffman hives. The annual short course in beekeeping will be held at the University farm Jan. 3 to 8 under the direction of Prof. Jager. The first four days will be devoted to the problems which are of special interest to the beginner and the amateur. Friday and Saturday will be devoted to commercial beekeeping. Plan to be present.

Minneapolis, Minn. Chas. D. Blaker.

* * *

In Texas.—The honey eaters of Texas have been much interested in the article in Gleanings on vitamines in honey, and now are equally interested in bulletin No. 250 of the Colorado Agricultural Station, by Dr. Walter G. Sackett. In this he gives the results of his experiments with "Honey as a Carrier of Intestinal Diseases." Dr. Sackett made the common observation that bees in their thoro search for food and water often visit places where they might become carriers of disease. He, therefore, made a number of solutions of honey and water, and into these he introduced the bacteria causing the more common intestinal troubles. He found that in pure water these bacteria would live 40 days or more, and in the solution of honey and water the length of life decreased as the per cent of honey increased, and in extracted honey alone they would live only from two to four days. Thus he showed that the chance of contracting an intestinal disease from honey is much less than from water, milk, or other substances having a high water content.

The annual bee-cave story is again in print. This time the cave is located in Menard County, Tex., and contains acres of solid comb honey. The bees in a solid cloud and with a roar like that of distant thunder leave and enter the cave. These bees collect this store of honey from the Rio Grande Valley and Mexico (only 150 miles away). A company is being formed to drill wells into this cave and pump out the honey. The story came to us from a Seattle paper, and shortly afterward a lawyer in Ohio wrote us that a client of his wanted information about the cave as he was about to buy stock in it. Let us warn the public that; while there are numerous small bee-caves in the limestone hills of Texas, the above story is a hoax and any such company is unknown here. If you must buy stock in wildcat schemes, try oil and you will not get stung—at least by bees.

The county fairs have about recovered from the war. This fall large numbers of the counties of Texas had very creditable fairs. In most of them the beekeepers were in evidence and their exhibits attracted much attention. The Guadalupe County fair held at Seguin had a very fine exhibit. The State Fair at Dallas also has the largest beekeepers' display in years. One of the best queens shown was reared in the State Experimental apiaries.

The dry weather of September and early October caused such a shortage of honey flow that in many sections bees were suffering from lack of stores; but the rains have come, the broomweed is yielding, and the bees will go into winter in good shape. The galls on the live oak, from which a heavy flow of poor-quality honey is commonly obtained, have failed to appear this fall. Horsemint is yet doubtful, as there was little moisture at the time the seed ripened. Many seedling plants are now to be seen, and the old honeymen say that the prospect is very good for another big horsemint year.

Henry Brenner, well known as a beekeeper in the United States and West Indies, a fluent writer of bee literature and the originator of the very excellent system of queen-rearing which bears his name, has returned to his home at Seguin, Tex., from a year's absence in Santo Domingo, where he has large apiary interests. He will again engage in the bee work here. H. B. Parks.

FROM NORTH, EAST, WEST AND SOUTH

In North Carolina. Bees and honey had an exceptionally fine representation in the recent North Carolina State Fair at Raleigh, according to the Raleigh News & Observer in a half-column report of the features of the exhibit, wonderfully demonstrating the possibilities in this State both in ability to make a most creditable showing at this time and the vast resources there are for advancement in the scope and importance of the industry. ''Bee Culture is a Coming Industry,'' was the headline the report carried. And it declared, ''A most interesting and significant demonstration of the possibilities and progress in bee culture and honey production in North Carolina was that embraced in the bees and honey division of the fair, where an exhibit by one beekeeper this year was larger than the whole exhibit for the industry in the 1919 fair.''

This year the exhibits were assembled under the direction of C. L. Sams, the Government bee specialist for North Carolina, assisted by R. W. Etheredge, a successful sideliner in beekeeping at Selma, N. C. Mr. Etheredge did not put in a competitive exhibit, but had a quantity of honey in tins and a unique display in shallow extracting super combs in which he had induced his bees to inscribe thereon in large bold honeycomb lettering, the words, ''Pine View Apiaries, Selma, N. C.'' The explanation of just how Mr. Etheredge induced his ''educated bees'' to work out this wonderful lettering on the frames made a most interesting story for the thousands of fair visitors. The lettering was indented. He really intended to have his bees produced raised letters; but he took the completed frames and cut the lettering in the honey just a little too late to catch the full honey flow, and the bees just moved below the honey in the crushed cells instead of building out these cells for the lettering as he had intended for them to do. However, he got a very creditable job of sign painting from his bees, any way.

Eight of the prize ribbon awards at this fair went to the Lower Cape Fear Apiaries, W. J. Martin, Wilmington, five of them being blue ribbons for highest awards for various types of honey and bee products. J. G. Killian, Ridgeway, won first prize for finest section comb honey; E. E. Kirkham first for white honey; and J. G. Powell, Raleigh, first for dark honey. The award for the largest and best exhibit went to W. J. Martin, operating Lower Cape Fear Apiaries.

The judging for the Bees and Honey division was by C. W. Cary of Norfolk, who is especially popular among North Carolina beekeepers and thru whom special supplementary prizes went to the various winners of highest awards. These included uncapping knife, bee-brush, smoker, comb foundation, and a number of other articles especially useful in bee culture.

With the enthusiastic co-operation of Secretary Joseph E. Pogue of the State Fair, Director Sams is already planning to assemble an exhibit for the bees and honey exhibit next fair, that will be several times larger than the one this year. Fully five times as much space has been allotted to the division, and there are assurances that the cash prizes will be more than doubled by the fair management. There will be big special prizes from numerous sources that will prove a wonderful factor in bringing together one of the finest displays ever gotten together in this section of the country.

Wilmington, N. C. W. J. Martin.

* * *

In Ontario. I presume most of central and eastern Canada, as well as as Ontario, has been blessed with wonderful weather during the past autumn. Today (Nov. 9) I noticed some fodder corn in a neighbor's orchard that had not been cut, and it was as green as ever. Tomatoes and other tender vegetables are untouched by frost in sheltered locations—certainly a very rare thing in our latitude for the second week in November.

Clovers have been growing all fall and at present are looking fine indeed, making prospects good for next year so far as the beekeeper is concerned, provided, of course, that it does not winter kill; but, needless to say, the real beekeeper never worries about what might happen, as enough always **does happen** to make things interesting without doing any worrying.

In the November Gleanings I referred to the sweet-clover situation in our district, and since that comment was written at least two farmers in our neighborhod have burned up their sweet-clover crop in the field after cutting it. While there is absolutely no market for it at present, it seems too bad to sacrifice the crop after it is grown; and, if I had the seed, it would be sport enough to hold it for a year or more if necessary, instead of burning it in the field after all the labor and expense of growing it. But we still look to alsike as our main honey source here in this part of Ontario at least, and I am glad to note that the stand is good for next season, and that farmers are still thinking of growing this clover, even if is only about half the price it was a year ago.

Honey markets are still dull in a wholesale way, as dealers will not load up with large quantities at a time unless they can buy at a price that they feel is absolutely safe. But honey is not the only item in the line of food and other products that are being handled like that; so in this period of readjustment in prices (which was bound to come sooner or later) beekeepers will just have to take their share of losses with others and feel just as cheerful as possible while doing so.

In looking over Gleanings for November, one cannot help but come to the conclusion that two queens are in a hive and tolerated there for some time, much oftener than we have been led to believe. About the middle of October of this year, while a helper and myself were examining a yard to see how well the colonies were provided with stores, I happened to lift out the center comb from the brood-nest of a bright Italian colony. The queen in spring had been marked as "failing." She was closely clipped, and so was readily seen on the comb at any time, as she was a very yellow Italian. As I lifted the comb from the brood-nest I was amazed to see two Italian queens within two inches of each other on the comb, paying no attention to each other but seemingly both of them engaged in egg-laying, as they had a patch of brood in all stages, late as it was in the season. They had full wings, showing that both were young, and while both were smart and active, one was about a third larger than the other. In superseding the old queen, two queens or more had been raised, and for some reason at least two of them were allowed to remain in the hive till middle October. They were left alone and the hive marked for future reference, and, if spared till next spring, I shall be looking forward with interest to see if there are two queens still on duty. In the fall of 1918 I united two colonies that had American foul brood, shaking the bees from the two hives together late in the season and starving them for a time, and feeding up later. Notwithstanding all the rough usage at such unseasonable times, both queens were alive in the colony quite late in the next spring. So, as already intimated, it looks as if we will have to change some of our set rules along the line of bees' having but one queen always.

From present indications, there will be a big crowd at the annual meeting of the Ontario Beekeepers' Association. Of course, the attendance at this meeting is always large as compared with many other associations of a like nature. This year the meeting is later than usual, and many farmer beekeepers will be able to attend, as the farm work will be over and at the same time they can attend the winter fair which immediately follows the beekeepers' meeting. Many young, enthusiastic beekeepers will be there, for even if honey is a bit cheaper never has there been a time when so many seem to be interested in the business. Early as it is for planning next year's work, we have had several applications from young men wishing to work with us another year.

Sugar has been tobogganing here in Canada during the last few days at a pace previously set by our friends across the line. A drop of $3.00 or more in 10 days is fast work, and wholesale prices here are now from $13.00 to $15.00 a hundred, with more "drop" in sight. Just how this will affect the honey market remains to be seen, but I do not believe the same ratio of decrease will show up in honey—but this is only my opinion. J. L. Byer.

Markham, Ont.

* * *

In Northern California.—I said in the October issue of Gleanings that the forecast was but half a crop of honey for our section this season, and belated reports from various districts have borne out the prediction. As a matter of fact, it is doubtful whether half a crop was actually produced. There have been several 500 and 1000 colony beekeepers that did not average 20 pounds to the colony. What northern and central California need more than anything else is a wet winter. We need also (and this is a factor which we can control) a regular clean-up in American foul brood. This disease is gaining a firm foothold in various places and is a most serious problem everywhere bees are kept. The prevalence of American foul brood this season was to be expected, as it is always found in an aggravated form following a year of scanty honey production. Next spring is the time to get after it and make as thoro a clean-up as possible. It is to be hoped that our inspectors will drive home the importance of a thoro and early clean-up, and that everyone of our readers will not only keep a keen watch for symptoms early in the spring, but also attempt to get others to do likewise. If any infected colonies are found, treat them early. Do not wait until May, but do it in March and April; there will be crops from colonies so treated. Not only this, but the possibility of infected colonies' being robbed out will also be minimized.

Modesto, Calif. M. C. Richter.

* * *

In Pacific Northwest.—Bees here will go into winter quarters in fine shape, and there seems to be a disposition among beekeepers towards some winter protection. In other words, they seem to realize that it pays to keep bees better.

Weather very fine and bees flying daily in the warm part of the day. No change to speak of in the honey market, except that honey is selling well and many have sold their entire crop. One good beekeeper with a crop of seven tons has sold on the public market at 35c per pound net. Just as soon as the entire crop is sold out, he and his family go south for the winter.

Portland, Ore. E. J. Ladd.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Chocolate Honey Candy. At the Ohio State beekeepers' exhibit at the State fair last September there was a unique feature that certainly proved a drawing card. Besides the usual exhibits of bee supplies and honey there was an exhibit of honey candies, these candies being made right on the grounds. This work was under the direct charge of L. H. Benninghuff, for Mr. McPherson of the Capitol Confection Company; Louise McPherson, Mrs. L. H. Benninghuff, and Rhode McCune made the candy. During the whole week of the exhibit great crowds assembled around this particular exhibit, paying five and ten cents for a package of chocolate-honey candies, made with pecan nuts and honey rolled in chocolate. These candies were so delicious that they advertised themselves; and most of the time there was a big jam around the exhibit. Pretty girls selling and pretty girls making the candy were a part of the exhibit. But the real thing was the candy itself. We are told they had to work night and day, and actually used up 45 cases of comb honey, 350 lbs. of sweet chocolate, and 30 lbs. of pecan nuts. The accompanying illustration shows the chocolate-candy honey booth and those in charge, with the crowd held back to give a clear view. The experiment proved to be such a success that something of the kind will be put into operation in other places.

By the way, the Ohio State beekeepers' co-operative exhibit of honey and honey appliances was likewise a great success. Whole crops of honey were sold, and the general public was delighted and edified.

Medina, O. E. R. Root.

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Queens Commit Suicide. What becomes of a superseded queen? The bees ostracize her and she commits suicide. This I know positively. I observed a case carefully six or eight months ago. I had a fine queen being superseded, and for days I looked at the entrance hourly and opened it every second day. Early one morning about six o'clock I found my fine old queen on the wide alighting-board a foot below the entrance with her head toward the entrance, calm, still, if anything sad, dejected. At the entrance was a cluster of five or six bees all watching her; all appeared to pity her, yet offered her no food, and did not approach her. It was a sad spectacle to behold. With pity and respect for her past virtues I picked her up gently, opened the hive carefully, placed her on a frame in among her offspring, and greatly to my surprise every bee left her immediately, envious at once, sullen, deliberate.

I replaced the frame with the old queen on it and was preparing to close the hive and watch the entrance again when she

The making and sale of chocolate honey candy was a feature of the Ohio beekeepers' display at the Ohio State Fair held at Columbus in September last. The picture shows the candy booth, with the crowd held back so that the photographer could get a clear view of this booth.

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crawled upon the top of the top-bar, walked deliberately to the back of the hive, and jumped off into the grass and disappeared. I looked carefully for her, but that was the last of my poor old mother queen.

My experience is that beekeeping is an exact science, every known act producing an exact result under identical conditions. Therefore, all superseded queens commit suicide from the mortification of ostracism.

Tampa, Fla. Hafford Jones.

* * *

Breaking the Record at 750 Pounds. Some 40 years ago B. F. Carroll of Texas produced 750 pounds of horsemint honey from a single colony in one season. If I am not mistaken, during all the years that have intervened till now this record has not been broken. Many have reached the 500-pound mark; not a few have reached 600 pounds; and a large number have secured a barrel of honey of 31 gallons per colony. It remained for W. J. Harvey of Upalco, Utah, to smash the record and then some. In 1918 from one colony he produced 908 pounds of honey, sweet clover and alfalfa. In 1919 he took from the same colony 744 pounds; for the last four years from all his 25 to 30 colonies he has taken six cans on the average to the colony; or, taking it in pounds, 360 pounds per colony. While there are some who have beaten this as an average, there is no one, so far as I know, who has reached the 900-pound mark from a single colony.

W. J. Harvey, a champion honey producer.

From a letter of Mr. Harvey we make the following quotation:

"Here is a condensed outline as to how my best colony was handled: (Abbreviations are: P pollen, br brood, fr frame, em empty brood frame put in.) April 12, 7 fr br 2 em; April 20, 5½ fr br 3 em; May 7, 8 fr br 1 em; May 17, 8½ br 1 em; June 3, 10 fr nearly full br; June 16, 9 fr full one ¼ P ¼ br ½ em; July 7, 1 em; July 19, 1 em. This is a 10-frame standard hive, and, of course, where so many empty frames were put in some were raised to the super. This is a 1918 queen and a direct descendant of my first hive, which I have handled without smoke or veil, one hour after sundown. This good hive made four surplus frames of pollen. The extracting dates were as follows: July 7, 164; July 19, 181; Aug. 2, 200; Aug. 23, 171; last, 28; total, 744."

It might be interesting in this connection to say that Mr. Harvey believes in strong colonies and winter protection. He attributes no small part of his success to the fact that he has his colonies packed during the winter; then when harvest comes on he has a force of bees of the right working age that are strong enough to smash the record.

If history repeats itself, some fellow will bob up and say, "I can go him one better." If so, let him come on with the proof. I talked with two or three of Mr. Harvey's neighbors who verified his statements.

Allow me to say that the district around Upalco is extraordinarily good. It is well stocked, however, with bees and beekeepers, so there is no chance for another fellow to get in unless he buys somebody out and pays the price. And it will be some price.

E. R. Root.

* * *

Why Californians Do as They Do. California beekeepers have the name of being careless. There is a reason, perhaps. In other sections of the United States one finds his location, and places his apiary for the honey flow or perhaps for a year. In either case he can take time and care and place each hive just so many feet apart, and so on, making a very beautiful yard. Here is what we are learning by experience in the land of flowers and sunshine.

When we first landed here we made three resolutions. First, use hive-stands; second, extract ripened honey; third, refrain from using honey from brood-nest. Our friends would look at the hive-stands and say, "You'll not use them long." "We extract frames ¼ capped and take honey from the hive-body or rather the brood-nest." But we firmly believed we would stick to our way, yet here is how we did it.

Landing here in January and no locations in sight, we placed all of our colonies in one yard. Then the fun began in finding locations for the orange flow. We would think we had a fine place and would drive a little farther on, and find out some other fellow thought it a fine place, too, and was located there. On and on we would go. Some had heard bees hurt the orange blossom. Others were afraid Johnny or Mary might get stung. But others were glad to have the bees located near them. So with time and patience we succeeded in finding room for all. Some want honey for rent, others cash. First we took hive-stands, and Mr. Bunger stepped off so many feet between rows and squinted from one end of the row to the other until things were just so.

Our first yard was large and nicely arranged, being in a small canyon with large orange groves to the east and green hills to the back. We could not boast of such a large yield of orange honey as some others, since our colonies were not in the condition of

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the California bees at the beginning of the orange flow. Some only built up, just storing the brood-nest full. Some made 150 pounds surplus, but a larger per cent made less.

Now for the extracting. Our fellow beekeepers were throwing honey out thin and fast long before we were. Note I say "thin." We left ours on until well capped and threw it out thick and slow. In fact, so slow that we had to quit one afternoon, as the combs were almost as heavy after extracting as before. The next morning we built a hot fire and warmed the combs, trying again with better success. But breaking resolution No. 2, next year we shall do as they do in California.

After the orange flow new apiaries began to appear along the desert and canyons for sage, wild alfalfa, buckwheat, and mountain flowers, so we knew it was time to move again. When new locations were found, we placed our colonies without any stepping off and squinting. We just cleared a little patch of sagebrush off and set the hives down without hive-stands. Resolution No. 1 broken.

And resolution No. 3 was very soon broken when Mr. Bunger began to lift those full hives to move them. We soon took out from two to three frames of honey, making the load much lighter to handle.

So we will say in conclusion that the Californians are not careless always; but conditions are different, making it necessary to move in a hurry, extract in a hurry, and move again. So by another year we will be true Californians in almost every way. We are enjoying every bit of this year, learning lots and getting our share of nature's sweets and making an increase of 200 colonies. Mrs. Roy Bunger.

Ontario, Calif.

* * *

Educating the Barnacle Beekeepers. The rapid spread of American foul brood has become a menace to many beekeepers in various parts of New York and has assumed threatening proportions in many quarters.

To meet this situation an appropriation of $10,000 was secured from the State to fight bee diseases. This fund is used to employ inspectors during that season of the year when inspection and treatment will do the most good. With this appropriation available some 14 or 16 short-time inspectors, in addition to our regular inspectors, have been at work in various parts of the State. To facilitate the work the State was divided into as many districts as there were inspectors, one or more counties for each district, according to the amount of work to be done in the various localities.

It has been found that the reports of the rapid spread of American foul brood, assuming almost the aspects of an epidemic, are true, and that there was, and will continue to be for some time to come, a great need for State aid in combating the disease. It is felt that a great amount of good work at inspection has been accomplished, especially in instructions to a large class of beekeepers who would never know how to treat their bees for disease except for the instructions to the beekeeper on the spot. It is recognized that this class of bee owners are more or less unworthy to receive free instruction; yet, because they are a positive menace to the beekeeping interests of the whole country when the deadly bee diseases are abroad in the land, and because the educational facilities of colleges, conventions, and bee periodicals will never reach them, it is policy to carry the education to their doors and force it on them if possible. If it were possible to educate this large class of barnacle beekeepers not to keep bees, the greatest possible service to the occupation of beekeeping would be rendered.

Kenmore, N. Y. O. L. Hershiser.

* * *

Bees Do Steal Eggs. Quite recently I had occasion to remove a hive of bees from one side of my residence to a warmer side, as no sun came on that side of the house in the winter. In order not to lose any of the flying bees I placed a hive with five drawn-out combs which had been stored for several months on the old stand. As I foresaw, in a few days I had three frames full of bees. Being a very busy man I had no time to unite these bees to the old stock for several days. To my great surprise some 14 days after when I opened up the hive, I was thunderstruck to find a queen-cell in the center of the second frame with an egg in it. I had a good look over all the frames to find out whether a fertile worker had got busy, but no trace of another egg could be found. Being curious I decided to let the bees go ahead, and see if they would rear a fertile queen from that cell. In due course it was capped and caged, and quite a good-sized queen emerged and was mated and is proving one of my best layers.

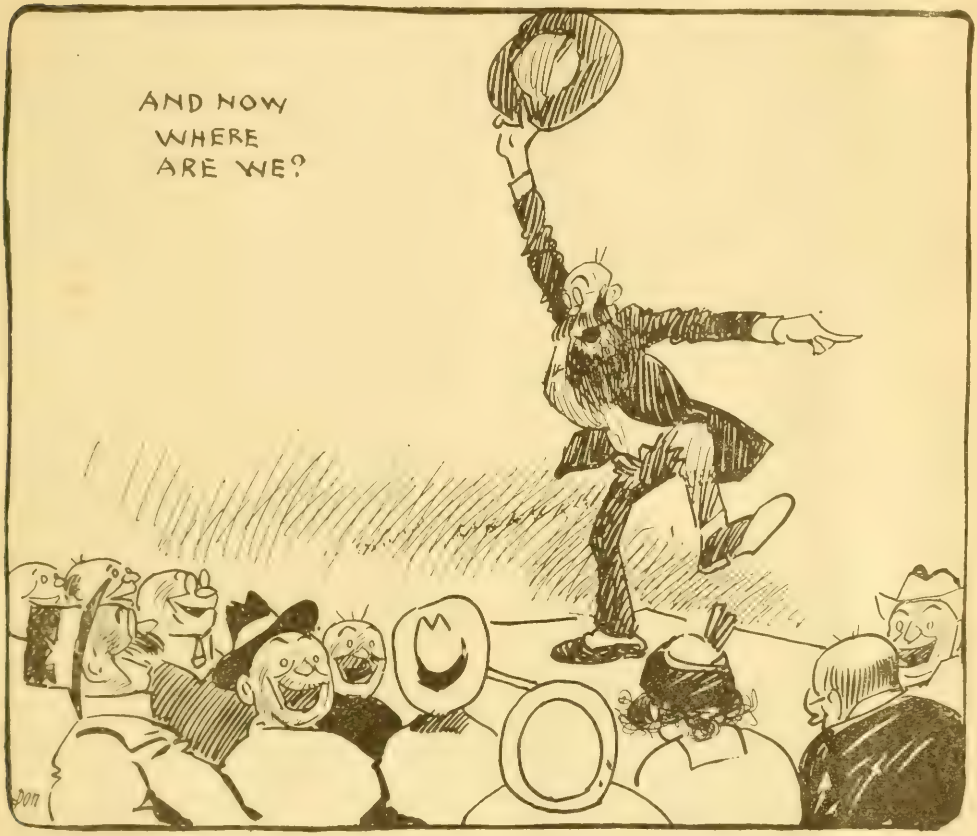
I think this a clear proof that bees do steal eggs, for there was no possible chance of that solitary egg's having been put in the hive in an old frame. Have you or any of your readers had a similar occurrence?

Johannesburg, S. Africa. W. G. Davis.

[For many years there has seemed little doubt that eggs are sometimes, tho very rarely, moved from one story to another and apparently from one hive to another. We have had a number of such reports from reliable men and have known of one case ourselves. Even Cheshire spoke of the possibility of bees' moving eggs from one cell to another. And as long ago as 1885, in the September Gleanings, following a report of an egg apparently stolen from another hive, A. I. Root said that quite a number of such cases had been reported in which it was very hard to explain where the egg came from, unless it was stolen.—Editor.]

The Obstructionist. By Bill Mellvir

(With Apologies to Walt Mason.)



I know an old-time rusty hick, who thinks he's beastly clever. He thinks he knows the latest trick and is the slickest ever. He's known it all these forty years. His dome is badly swollen with knowledge which this old cheese fears might some day all be stolen. If others knew the tricks of trade with this old duffer trusted, there'd be such scads of honey made, the market would be busted. And so he keeps his precious kinks from Tom and Dick and Harry, till now the stuff he knows, by jinks, is more than he can carry. He always kicks like forty steers at any bee-instruction and thinks he's saved us all these years from ruin and destruction. He keeps a study of our craft from being taught in college. He serves as watchdog for our raft by stifling spread of knowledge. And when we beemen have a meet or hold a big convention, he tries to throw us off our feet by starting some contention. He likes to rag us from the stump until he's in a lather and says we're going to the dump where all the bow-wows gather. Oh, this old kicker is a nut with fly-wheel backward turning. He's in a measly little rut: his gears are idly churning. He can not stop the caravan of progress swiftly gliding. He's now a tin-horn also ran, with has-beens he's abiding. For when he parked beside the road to block the whole procession, his knowledge, ah! that mighty load, soon slipped from his possession. One can not keep right up to date while so much knowledge hiding, for Wisdom seeks the helpful skate who's in the front rank riding.

GLEANED BY ASKING

Editors

Question.—I am making a specialty of extracted and bulk comb honey. I use the Danzenbaker hive, with the hive-body as supers. I use full sheets of foundation. Some of the combs are crooked, some too thick and some are too thin. Is there not some device, similar to the fences used in section supers, to insure straight combs of uniform thickness? Something on the order of the queen-excluding honey-board might answer. If there is nothing for this purpose, would you recommend the queen-excluding division-board?

North Carolina. R. E. Carter.

Answer.—If the hives are kept level and if the colonies of bees are kept strong and are given a full set of foundation at one time, we see no reason why those combs should not be drawn out evenly, when there is a good flow of honey. But if your honey flow is slow or intermittent or if your colonies are not booming strong, the bees will begin work on some of the combs ahead of others, building these combs thicker unless you use some such device as that you mention.

Questions.—(1) I have read about the flight that bees make in the fall in November, and they say you should put your bees away in the cellar right after the flight. Can you tell me what a flight is and how to distinguish it? (2) Does it take any more honey in a hive that is in a poor cellar than in a cellar in which there is a furnace?

Minnesota. Charley Krueger.

Answers.—(1) During warm days in the late fall bees will often fly from their hives not as a swarm, but simply a few bees leaving and returning to the hives just as they might do any day which is warm. On such days as this all the bees actually needing a flight would take it. Therefore such days are spoken of as good flight days. (2) A good cellar should be darkened and well ventilated and should have an even temperature of about 45 degrees. If the cellar is too cool it becomes necessary for the bees to be very active in order to keep up the temperature of the colony, and this unusual activity on their part compels them to use an unusual amount of stores; so there will be considerable saving of stores if the right cellar temperature is maintained.

Question.—I intend to quit the city life and would like to buy myself a farm in New York State out on Long Island. I intend to put up about 75 hives to begin with. And what I would like to know is: Do you think a bee farm with 75 hives will bring enough money for two to live on?

New York. Fred Sollner.

Answer.—Of course, if you have had experience with bees, then it might be safe to start in with 75 colonies; but, as a general proposition, it is much better to start with a few and then as you gain in experience gradually increase the number. Now, as to the number of colonies that would be necessary in order to support two, that would depend a great deal on the two individuals, on the local conditions, the amount of nectar to be obtained in any given locality, and also upon the price at which the honey would sell. Of course, the seasons vary, but in a locality where colonies average 100 pounds per colony and in a season when honey sells at 20c you can readily see that your 75 colonies would produce $1500 worth of honey, but of course, there would be some expense connected with this. In order to make a living good years and poor ones, just as they come, you would probably want more colonies, very likely as many as 150, or even more. A year ago a number of beekeepers in Michigan whose colonies averaged 100 colonies to the beekeeper, had an average income of nearly $3000, but, of course, at that time prices were very high.

Question.—Will it be perfectly safe to use foul brood hives again by scraping the inside carefully, then charring slightly the inside with a blow-pipe and painting inside and out.

Pennsylvania. John Major.

Answer.—Yes, the method that you suggest of cleaning your hives would certainly make them safe to use again. However, we do not think that it would be necessary after scraping and charring the inside of the hive to paint it. The scraping and charring ought to be sufficient. Of course, we infer that you are speaking about American foul brood, for in case of European foul brood it is not necessary to disinfect the hives at all.

Question.—I purchased a supply of carbon bisulphide to kill moths which were working on my unfinished sections and frames of honey that I had reserved to give to weak colonies. I gave all of those combs a slight treatment of carbon bisulphide, and a while afterwards I gave three of those frames containing honey to a colony that was short of stores, and in 24 hours afterward half of the bees in the hive were dead. These frames were carried from the honey-house in the open air to the hive. I would like to know if the rest of those frames of honey will still be poisonous to bees or people. If so, that dope is going to cost me about $100; but I am pretty sure the moths will die.

West Virginia. T. A. Youngblood.

Answer.—The report you gave us of killing your bees by the use of combs that had been treated with carbon bisulphide is difficult to understand, for in all the years that carbon bisulphide has been used for this purpose we have never yet had a report such as yours. We are wondering just how you applied the treatment. The carbon bisulphide is not supposed to be sprayed on the combs, but is simply put in a shallow pan and placed at the top of a pile of combs to be treated, the pile being carefully covered at the top and bottom and left 24 hours. The Texas Experiment Station has made various experiments with carbon bisulphide and in a bulletin, June, 1918, by F. B. Paddock, he states that when the supers are taken down the confined gas will escape immediately, even before they can be carried separately to a building. Of course, if the carbon bisulphide was put immediately on the combs this might make a difference. We do not know. Perhaps Prof. Paddock will enlighten us.

Questions.—(1) Are bees injured by helping themselves to molasses and skimmings that are taken from it while it is being made? They do not take to it readily until it begins to ferment. (2) Will sweet cider injure the bees? (3) Where lumber is very cheap, as it is around the mountain saw mills, do you think it would pay to provide winter packing for bees in single-walled hives? Some are in standard ten-frame and and some in Long Idea hives. We are located in the mountains in northern Alabama, and the bees are in an exposed location.

Alabama. Lucian C. Scott.

Answers.—(1) The fermented molasses skimmings would not be good stores for the bees. (2) Sweet cider is also a very poor thing to allow the bees to store. (3) Since your bees are in such an exposed location we believe you will find that it will be of benefit for the colonies to have a little protection as you suggest, altho, of course, less protection is needed in your locality. A windbreak would also be a great help.

Question.—In the fall I divided a colony by the Alexander method and a few days later found them dragging dead bees from the one on the old stand. I examined them and found no honey, so I gave them a comb full of it and in a few days they were all right. Was starvation the cause of this?

Nebraska. Burton Kiltz.

Answer.—If the old swarm was short of stores, this might have been the cause of their carrying brood from the entrance. They also would do the same thing, if the entrance was not sufficiently contracted so that the brood became chilled in the night, or if too few bees were left with the brood, as sometimes happens with the division moved to a new stand.

Questions.—(1) What information can you give me about candied honey? What is the reason it candies, and what can we do, if anything, to prevent it? The stores do not care to handle our honey because they say it candies in such a short time, it is difficult for them to handle, but their customers all like it. It is very thick, of good color, and of fine flavor. They tell us that other beemen furnish them with large tanks of honey which they guarantee will not candy. Do they put anything in it? (2) Why is it that at the end of the honey flow I find that quite a number of my colonies are queenless, some of which were the strongest the first of the season. (3) Will the colony swarm out when the queen goes out to mate?

California. Bartlett Boyd.

Answers.—(1) The reason that some honeys candy more readily than others is because they contain a greater amount of dextrose. Also, agitation of honey and sudden changes of temperature always hasten granulation. If you heat the honey to at least 130 degrees Fahrenheit and take pains that it does not become any hotter than 160 degrees Fahrenheit, which is a rather high temperature, you will probably be able to put your honey up so that it will remain liquid for a much longer time. It is better to hold the temperature at 130 or a little more for some time rather than to use too high a temperature. When heating your honey before bottling you will probably not have much difficulty with its granulating while on the hands of the storekeeper. We know of nothing that you could put in the honey to prevent its granulation, and anyway, you would not care to do so since this would adulterate the honey. (2) There are different reasons that might account for the queenlessness of your colony after the end of the honey flow. In case you do not use queen-excluders and the queen is allowed free use of the entire hive, it is possible that she might go into the supers and raise brood there; then when you remove the supers you might accidentally remove her also. We have known colonies to become queenless in this way. Again, there is a chance that the old queens were superseded and perhaps the young queens were lost in mating. Or, it may be that the colonies after the honey flow swarmed without your knowledge, and the old queen left and the young one was lost when she took her wedding flight. (3) Sometimes small nuclei do swarm out with the virgin queen when she leaves the hive to be mated, but usually the bees and queen return shortly.

Question.—We packed two colonies last winter, each being packed the same. The colony with the less winter stores came thru the winter finely, while the colony with the more stores wintered badly, more than half the bees dying. What could have been the cause?

Ohio. Mrs. Silvia Petrecca.

Answer.—We regret that you did not tell us more about the two colonies. Without knowing more of the conditions it is impossible for us to explain why one wintered so much better than the other. It is possible that one colony was stronger than the other in the fall, or it may be that one was more exposed to the cold winds in winter. You say nothing about the size of the entrances. Of course, if an entrance was left large enough so that a mouse could enter the hive, poor wintering could be expected. Sometimes also we have known of field mice making their nest under the hive. In most cases this would probably do no harm, but if the mice were close enough to the bottom of the hive so that there was an occasional jarring of the hive, this would cause the colony to winter poorly. As a further suggestion we might say that if a queen is old or poor, colonies often do not raise as much young brood in the fall as they would do if they had a good queen. Therefore, there are not as many young bees to go into winter quarters. Colonies that are composed mostly of old bees in the fall do not winter nearly as well, and in some cases perish outright.

BEES, MEN AND THINGS

(You may find it here)

I HAVE an old dog-eared A B C that I bought about 36 years ago. It is about worn out making young beekeepers, starting them right when they first enthuse. I would not swap it to you for the finest morocco-bound book that you can put out, altho Doolittle’s comments are worn off by much use.’’—Hugh L. Lynn, Daviess County, Ky.

‘‘This is one of the best places in Indiana for a fall flow. There are tons of honey here that are never gathered.’’—T. C. Johnson, Deputy Bee Inspector, Logansport, Ind.

‘‘In walking across my lawn at noon today I noticed a considerable bloom of dandelion and bees working on it. How is that for ‘Our Lady of the Snows’ on the fifth day of November?’’—Edwin V. Hillson, Norfolk County, Ont.

‘‘We are very much pleased with Mr. O. Jones’ very latest plan in transferring, a description of which appeared in your September number. We gave it a thoro test and found it very satisfactory indeed.’’—Goodwin & Fowler, Woodroffe, Ont.

‘‘My bees did very well this summer. I increased them five to one, that is, I made 55 from 11, spring count. After leaving them about 60 pounds I will have a little over a ton of honey to sell.’’ Herman Voller, Aitkin County, Minn.

‘‘I have been a beekeeper for 62 years. I have taken Gleanings since it started as a quarterly, so I have been with you quite a while now. I shipped honey to D. W. Quinby, brother of M. Quinby, to New York City.—F. A. Snell, Carroll County, Ill.

‘‘We have had strains of bees that would not start supersedure cells, no matter how old or poor the queen was. Just as long as she was in the hive the bees respected her. Other strains would start cells and have them capped before I had discovered that the queen was failing.’’—A. W. Lindsay, Wayne County, Mich.

‘‘The average person, I find, has no idea what is meant by ‘extracted’ honey. All honey removed from the comb he thinks is taken out by mashing the comb with the hands. The statement, ‘This honey extracted from the comb by machinery—never touched by human hands,’ I think is good advertising, and some reference to this fact should be a part of every honey label.’’—O. K. Paxton, Hamilton County, Fla.

‘‘While at work in a sanitarium I distributed more than one section of honey where indications pointed to places where it might improve a jaded appetite, and I would often have a convalescent come to me inquiring whether or not I had allotted to him a block of honey. When I admitted that it was probable that such an accusation might be true, they declared that their appetites had returned with the eating of that honey, and that they had since continued to improved.’’—Benj. B. Jones, Baltimore County, Md.

‘‘The honey business in Montana was hit a hard jolt this year by a new pest on the alfalfa and sweet clover. Our state entomologist is at sea in regard to this insect. He claims that it is something entirely new and never encountered anywhere else. Aside from ruining the alfalfa seed crop, the honey crop is cut in two. This is not the old alfalfa weevil but has been named ‘Thrips.’ I will average about 75 pounds from 300 colonies, which is about half of what it should have been.’’—R. A. Bray, Sweet Grass County, Mont.

‘‘I have 46 colonies of bees, all packed (Nov. 1) two to four weeks ago. Twelve hives have two ten-story bodies. The whole yard will average 40 pounds. We had a great flow of white aster; and on account of the beautiful warm weather 80 to 90 per cent is capped. I might add that I have never had any trouble with aster honey, whether capped or not. Many young bees are being raised. I consider this all right, as I have plenty of stores.’’—O. C. Wall, Davie County, N. C.

‘‘I think the cause of the so-called ‘disappearing disease’ may be having the bees underfed or fed with unbalanced rations when they were in their ‘baby’ or grub period. We know that sufficient water, fresh pollen, and honey constitute a balanced ration for grubs. Therefore, if inclement weather prevents them from going out in the spring to supply a lack of any of these three rations, the result is under-nourished young bees, which I think might cause the so-called ‘disappearing disease.’ ’’—J. H. Fisbeck, Missouri.

‘‘The bees do not bother the first bitterweed that blooms in May and June, but they begin on the second crop which opens about Aug. 15 and continues until Sept. 20. If we would take notice and extract this and save it for next spring, the bees, after the bitterweed flow is over, could get a nice crop from boneset, smartweed, goldenrod, and a number of other flowers. I believe that a colony, having a second story full of honey or even a shallow super full in the fall is worth three colonies in one-story hives for either honey or increase.’’—J. E. Sutton, Marengo County, Ala.

JUST NEWS

Editors

About 65 beekeepers of Florida met at Gainesville on Oct. 6 and organized the Florida State Beekeepers' Association. J. W. Barney of Bradentown was elected president; J. K. Isabel of Wewahitchka, vice president; J. R. Hunter of Wewahitchka, treasurer, and K. E. Bragdon of Cocoa was elected secretary.

* * *

The honey exhibit this year at the Western Washington Fair, Puyallup, Wash., is said to be the largest exhibit of its kind ever shown in that State.

* * *

H. B. Parks has resigned as state apiarist of Texas and on Nov. 1 will take up his new work in the sales promotion and extension department of the Texas Honey Producers' Association.

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The New Jersey Beekeepers' Association will hold its annual meeting at Trenton on January 13 and 14. A complete program of this meeting may be had by writing to the secretary, E. G. Carr, New Egypt, N. J.

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Arthur Rattray, Almont, Mich., has recently sold his interest in the Domestic Beekeeper to E. A. Little, Lansing, Mich. Mr. Rattray will be associate editor under the new management.

* * *

The annual meeting of the Minnesota State Beekeepers' Association will be held on Dec. 7 and 8, in the meeting rooms of the Medical Association, Donaldson Bldg., 7th and Nicollet St., Minneapolis, Minn.

* * *

The Illinois State Beekepers' Association will hold its annual meeting on December 14 and 15, 1920, in the sun parlor of the Leland hotel at Springfield, Ill. Details and further information can be secured by writing to the secretary, G. M. Withrow, Mechanicsburg, Ill.

* * *

The annual meeting of the Michigan Beekeepers' Association will be held on Jan. 25, 26, and 27 at East Lansing, Mich. The sessions will probably be held at the Agricultural College, and arrangements will be made so that those desiring rooms at the college may secure them by writing to the secretary, R. H. Kelty, East Lansing, Mich.

* * *

A. I. Root writes from somewhere in Dixie (see Notes of Travel, page 754) as follows: "I am so well that I sleep from 8 P. M. to 6 A. M., and no nap at all or almost none thru the day. I am enjoying the trip amazingly. We are passing thru miles of cotton fields, some of them almost as white as snow. Ernest is also very well. It is quite cold yet even 'way down in Dixie,' but I think no frost. Of course, we cannot use our tent, but have to stop at hotels with steam or other heat in our rooms."—A. I. Root.

* * *

The annual meeting of the Pennsylvania State Beekeepers' Association will be held at Harrisburg on Jan. 26, during the big agricultural week of the Keystone State. Dr. E. F. Phillips will be one of the speakers.

* * *

At a recent meeting of the Oregon Beekeepers' Association, A. J. Sanford of Redmond was elected president, and H. A. Scullen secretary. A two-day conference for this association to be held some time during the winter is now being arranged.

* * *

H. A. Scullen of Corvallis, Ore., has recently been appointed in charge of bee culture work at the Oregon Agricultural College. He will have charge of the class work at the college as well as that of helping beekeepers of the State with their local problems and assisting in organization work. Prof. Scullen was formerly special Field Agent in Beekeeping Extension work for the State of Washington, but resigned from that position to take up commercial honey production in Oregon.

* * *

The annual convention of the Chicago North-Western Beekeepers' Association will be held in the Great Northern hotel, Chicago, on Monday and Tuesday, Dec. 6 and 7, 1920. An exceptionally good program will be presented. Many prominent beemen from states both east and west have signified their intention of being present and will take part in the discussions. Anyone desiring a program please write the secretary, John C. Bull, 1013 Calumet Ave., Valparaiso, Ind.

* * *

A joint meeting of the Washington State Beekeepers' Association and the Inland Empire Beekeepers' Association will be held in Spokane, Wash., on Dec. 14, 15, and 16. On Wednesday forenoon, Dec. 15, there will be a joint session of the beekeepers and horticulturists to discuss topics of mutual interest; and Wednesday evening there will be a big banquet for all who desire to partake. A splendid program is being arranged for this meeting. Further information can be secured by writing to George W. York, First Ave. and Lincoln St., Spokane, Wash.

OUR HOMES

A. I. ROOT

Blessed are they which do hunger and thirst after righteousness; for they shall be filled.—Matt. 5:6.

And there shall in no wise enter into it anything that defileth, neither whatsoever worketh abomination or maketh a lie; but they which are written in the Lamb's book of life.—Rev. 21:27.

Know ye not that ye are the temple of God, and that the Spirit of God dwelleth in you?— I. Cor. 3:16.

MY good friends, familiar as it has been to me almost all my life, I have never yet understood the full application of our first text until within just a few days. I have always taken it as having a personal application—that is, as referring to one's individual life. Now, it is a good thing to have made your peace with the dear Savior and with the great heavenly Father; and it is a good thing to be "hungering and thirsting" every day for a purer and cleaner life—cleaner in *thought* as well as in word and action. But this new meaning that has come to me is that we should be hungering and thirsting for a *better humanity*, and that we should love our neighbor as ourselves, to a sufficient extent to be hungering and thirsting for the glad time when all humanity shall be cleaner and purer. We should be hungering and thirsting and also *praying*, "Thy kingdom come, thy will be done on earth as it is in heaven." I have spoken about studying humanity in our great cities, looking from one to another of the great masses that throng the crowded streets. I have been hungering and thirsting, somewhat unconsciously, for the glimpses that would tell of better and purer lives.*

Just about 25 years ago I visited the Battle Creek sanitarium. I do not need to say Battle Creek, *Michigan*, for almost every body knows where Battle Creek is. Well, I have been in touch, more or less, with the great work being done there, not only for 25 years past, but for 45 and perhaps 50 years. I knew their great sanitarium was burned up some years ago; and I knew, also, by reports that they had built another and better one. For some time back my good friend, Dr. Kellogg, at the head of this great institution, has been asking me to make them a visit and see how they were prospering. At the close of a recent letter he writes as follows:

> I am glad that you have not forgotten my invitation to visit us. I am hoping every year to have the pleasure of seeing you here. I should like to take some rides with you over our beautiful country roads and chat with you about a lot of things in which, I am sure, we are mutually interested.
>
> Be assured we will take good care of you if you come. We have had many visitors further along in years than you. Your activities are so numerous I always think of you as young rather than old.
>
> Our good friend, Dr. Stephen Smith, still visits us quite frequently. He was with us on his ninety-eighth birthday, and expects to be with us on his hundredth birthday. Your friend,
>
> J. H. KELLOGG.
>
> Battle Creek, Mich., Aug. 22, 1920.

Well, on Sept. 28 it was my pleasure to set foot on the grounds of the new sanitarium. Just then something happened that almost startled me. I did not know what it was for a while. As usual I began studying the faces and actions of the crowds of people I met there, especially the boys and young and old men. I glanced over them with a feeling of joy, and began thanking God, and I did not know just *why*, I did so either.

Now, dear friends, I am going to step on delicate ground—maybe on holy ground, as did Moses when he stood before the burning bush; and my most earnest prayer is that I may be enabled to do good and not offend, even if I talk plainer, perhaps, than I have done of late. Unconsciously I was thanking God because, among the hundreds I met there outdoors in the beautiful sunshine, there was not visible a cigar, pipe, nor cigarette. As I passed over the grounds on the outside of the great edifice there were no stubs of cigars, no half-burned cigarettes, nor even ashes that somebody had brushed off from his cigar. When I went into the great building, then into the office where guests registered, there were no filthy spittoons. When I went into a closet (or any of the many closets), there was no tobacco spittle in the closet-bowls, nor any spattered on the walls or

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*Right here a letter has been placed on my desk which is a fair sample of other letters that have been coming continuously for almost 40 years. For quite a time I gave them place in Gleanings under the head of "Kind Words;" but lately there have been so many of them that it is impossible to find room for them, especially since Gleanings has been made a monthly instead of a semi-monthly. Well, these letters emphasized what I have been trying to tell you—that almost unconsciously, in this Home Department, I *have* been hungering and thirsting after righteousness. Below is the letter.

"Mr. Root, I have never met you, but I take Gleanings in Bee Culture, and I certainly enjoy reading the Home Papers. They are the first thing I read when I receive the paper, and they have done me a world of good. I want to thank you for them.

"Hoping you may be spared to write many Home Papers, and with best wishes for you and yours, I remain, "Your friend, "R. B. ELDER."

Darlington, Pa., Oct. 4, 1920.

over in some corner. Everything was as spotless and as clean as *Mrs. Root* herself would have it. I suspect she will scold a little when she sees this, but I am going to take the chances.

I will now digress a little right here. Yes, dear friends, I wish to digress a lot in the story I am going to tell, and I pray that the story may do good.

Some years ago when taking a trip down to my Florida home I decided to investigate the toilet rooms so far as I could. In one county seat where I had to stop to catch a train there was no closet, and I was told that I would have to go over to the courthouse, a block or so away. They had just erected a new edifice, and it was a model of neatness and beauty. A nice room had been fixed up for a closet, with marble, porcelain, nickel silver fixings, and all modern improvements; but, altho the edifice had been but recently finished, tobacco juice was spattered over all the marble floor, porcelain closets, and elsewhere, until the whole place was just awful, even to look at. I think the poor janitor must have become disgusted with the habits of the men folks and lost courage. I am afraid some of these filthy habits belong to some lawyers, doctors, and possibly professors, and the poor janitor had evidently given up all hopes of keeping things neat and sweet and clean, altho he had all modern appliances for doing his work.

At the great Union Depot in Miami, Fla., things were for a while so well kept that I rejoiced; but on my last visit in that same depot it looked a good deal like the courthouse I have described.

In Jacksonville, Miami, and I presume in many other cities, they had special closet rooms where one could open the door only by putting a nickel in the slot. These for a while were kept in pretty fair shape; but at the time of my last visit in one of these city places the locks had been broken off, the doors swung wide open, and I think one door was hanging by only one hinge, and the same filthiness was evident once more. Maybe I am exaggerating the matter. If so, I shall be very glad to be corrected.

Just one more digression.

Mrs. Root dreads riding on the cars because she gets carsick. On our last trip, however, from Florida to our Medina home she did not get carsick at all. But *I* did. I will tell you why. The smoking room in the Pullman car was right close to our berth. An electric fan was put up to insure "good (?) ventilation." The fan was so placed that it pulled the tobacco smoke and other fumes from the smoker right into my face. Yes, I *could* have gotten another seat, but almost every berth was occupied, upper as well as lower, and I could not just then get another seat without trespassing on the good nature of some other tired passenger. Why did I not complain? Well, since I am getting old I have thought many times I would stop grumbling and try to put up with what others put up with.

Let us now get back to my text. I do not mind so much the little inconvenience myself; but when a great part of humanity is suffering, I feel the responsibility is placed on my shoulders, at least to a certain extent, by the great Father above, and that I *ought* to complain and let my voice be heard.

Well, it was my pleasure to be in and all about that wonderful sanitarium for about four days. In this place we are told there are 50 expert doctors and something like 400 nurses. I took a full course of treatment—that is, as full as I could in four days, and every doctor who examined me was free from anything in his breath that would indicate tobacco. May God help us to work for a time when our *physicians* (to say nothing of anybody else) shall be free from the tobacco habit. I do not know for sure, but I imagine that quite a large part of these 50 "expert doctors" are women; and I was so much impressed during the four days of my stay at Battle Creek that the words of my second text came into my mind involuntarily—"And there shall in no wise enter into it anything that defileth, neither whatsoever worketh abomination or maketh a lie." I found this in the next to the last chapter in the last book of the Bible. For several years past the children have insisted that I should have frequent examinations by competent physicians. Now, with no disrespect to the city doctors who have looked me over, I want to say that the clean, sweet men and women at Battle Creek are doing their work better and more thoroly than any I have ever met anywhere else. I was particularly impressed by one doctor—Dr. Stewart. Instead of being very sober, as most doctors seem to think they must be, he, in a kind, friendly way, asked me more questions than any other doctor ever asked me before—gave me time for a full inspection, made some suggestions, and seemed as anxious to help me over my few minor troubles as if he were my own son.* Right here I wish to ask the users of tobacco, whose eyes rest on these pages, to look over that second text of mine, and see how well their lives contribute to make, such a place, of this world of ours. Perhaps I might mention right here that my son, E. R. Root, took me up to Michigan in a brand-new Dodge automobile. I rode 200 miles in one day, and over some roads about as bad as you can find anywhere, and felt "as spry as a cricket" when I reached home at night; and I might *almost* say that I did not have a nap from daylight till long after dark. I have been thanking the Lord for it ever since, and am

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The above is not only true, but there is another thing connected with it that impresses me. In some respects this sanitarium seems to be conducted on the principles of some of our modern factories. It is, in fact, a great factory for health. As I passed from room to room I found other patients ahead of looking forward with lively anticipation to a trip by automobile from Medina, O., to Bradentown, Fla., in just a few days. Well, here is a point:

My son, "E. R.," looked after my comfort and convenience with all the solicitude of a mother. I think one of the greatest joys of my life was teaching him to walk and talk, and look over the pages of the Scientific American, and explain to him—that is, I did it after a fashion—before he could stand alone. We have been "chums" almost 60 years, and now when I begin to feel symptoms of failing from old age he is eyes and ears for me—especially ears; and when it comes to stopping at night he absolutely insists that I shall have the best protection and comfort the city affords. When we go to Florida, however, we expect to sleep outdoors in a tent—not only to save money but to save health. Now, suppose I had been so silly or shortsighted as to remain single all of my life as some young men are doing—yes, women, too—where would the Home of the Honeybees be?

Let us now go back to the tobacco matter again.

If you think I overestimate the harm that tobacco is doing, read the following. It was clipped to put in another department, but I think it will come in well right here:

THE USE OF STIMULANTS.

On the outside page of the *No-Tobacco Journal* for March, we find this:

TOBACCO A DECEIVER.

The following quotation from President G. Stanly Hall of Clark University is a terrific indictment of tobacco: "The basis of all intemperance is the effort to secure, thru drugs, the feeling of happiness when happiness does not exist. * * *. There are many drugs which cause this pleasure, and in proportion to the delight they seem to give is the real mischief they work. * * * Alcohol gives a feeling of warmth or vigor or exhilaration, when the real warmth or vigor or exhilaration does not exist. Tobacco gives a feeling of rest which is not restfulness. * * * One and all the drugs tend to give the impression of a power or a pleasure or an activity which we do not possess. One and all their function is to force the nervous system to lie. One and all the result of their habitual use is to render the nervous system incapable of ever telling the truth. One and all their supposed pleasures are followed by a reaction of subjective pains, as spurious and as unreal as the pleasures which they follow. Each of them, if used to excess, brings in time insanity, incapacity, and death."

Can any one dispute the truth of the above? The *No-Tobacco Journal* is published at Butler, Ind., at 25c per year.

God knows, dear friends, that I do not wish to dictate. I do not wish to dispute your right to use tobacco if you still choose to do so—that is, in the case of grown people; but I do wish to do everything in my power to hinder the little fellows from smoking cigarettes. In passing thru our large cities I watch especially the boys to see how many are smoking cigarettes. I recently said to Ernest, after we had been all over and thru this great sanitarium, "Ernest, is there any other spot in the whole United States where we can find hundreds and even thousands congregated without a single human being, old or young, who is addicted to the tobacco habit?" He smiled, and suggested Dr. Dowie and Zion City; but I confess I have not heard very much of Dr. Dowie or his successor of late; and I am thanking the Lord that there is at least one spot in our United States where tobacco in all its forms is successfully banished, and that this institute has kept up and prospered for about 50 years, and this causes me to think it is a pretty good institution, and that it is on a sound basis.* Perhaps I might remark right here that in the dining-room, where they have the best and finest menu that I ever found in my life, there is neither tea nor coffee. The rule of that establishment seems to be, no stimulants of any sort.

On our trip home I greatly enjoyed seeing the crops thru Ohio and Michigan. In both States they were harvesting sugar beets. Great loads were being taken from the fields and carried to the refineries. In fact, they were heaped up so much on many of the huge wagons that they dropped off on the road. Ernest was curious enough to stop the auto and pick up some of those beets that had been dropped, and we have just had some cooked, and found they were about the finest beets we ever tasted.

Now, here is another *exceedingly* short cut between producer and consumer. If sugar ever gets away up again, or, more particularly, if the time ever comes when we can not *buy* sugar, let us grow sugar beets in the garden, and in this way we shall not only have sugar at an insignificant cost, but we shall have the sugar just as God made it. I think our best medical authorities now agree that sugar in the form of sweet fruits or vegetables is very much more wholesome in every way than it is after the best part has been taken out at the sugar refineries. The same thing applies to sorghum. In getting the bran out of wheat, and the color out of sugar and everything else in that line, we are "refining" ourselves into our graves.

Another thing that pleased me greatly

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me waiting for their turn to come; and each expert doctor, or oftentimes two doctors with their apparatus, microscopes, or other instruments, kept doing the same thing over and over. When it came my turn to have some blood taken from my arm a couple of expert women bared my arm in no time and applied the lance and secured a sample of blood, and then put on an antiseptic plaster; and the whole thing was done, as it seemed to me, in less than a minute, and so on thru the entire office hours. With the aid of all up-to-date scientific apparatus a patient was thoroly examined from head to foot in a fraction of the time that would be occupied by the ordinary physician.

*I notice the following in Good Health:

"The Battle Creek Sanitarium represents a new departure in the treatment of the sick. For the first time in the history of medicine, all rational and scientific remedies have been brought together under one roof."

was great fields of alfalfa and sweet clover all over Michigan. We could not well tell when riding rapidly thru the country which was which—that is, if they had been just freshly cut. Where the growth was high enough to permit blossoms, the beautiful blue of the alfalfa told the story. Both showed a beautiful bright green when everything else seemed hurt by the drouth; and a great part of the fields, at least where the sweet clover grew, was, I suppose, the biennial, for the annual has not as yet gotten into the *fields*.

TOBACCO AND THE WAR; FROM A DRUGGIST WHO DOES NOT, NOW, SELL TOBACCO.

Friend Mr. Root:—The cause of tobacco made great strides forward by the war. This is very discouraging, but nevertheless it is so. It appears that the habit of smoking cigarets in the army was at a premium. I remember a solicitor called on me in the interest of a donation in favor of the "Knights of Columbus," and a folder was handed to me. On it was a soldier represented as wounded and receiving aid from a worker in their cause. I could not make out the illustration very well; so I asked what it was that the worker was represented as doing for the soldier. "Why," said the solicitor, "the worker is helping the poor man to a cigaret."

Tobacco is very poisonous to some, and kills many who have a tobacco heart. It is the cause of more stomach, digestive, and nervous troubles than any other one thing, including whisky. The popularity of cigarets during the war, in my opinion, had the influence on our legislature to loosen the cigaret law to allow them to be sold to people 21 years old.

I contracted the tobacco habit thru the negligence of my parents when I was less than 10 years old, while in the inquisitive age, the time the youth is ready to try anything once. The only thing that made me ever quit it was that it was ruining my health; and about 15 years ago I quit and have never used it since. After ceasing the use of tobacco, in about 18 months the nicotine leaves the body, and the person is rarely troubled afterward with the craving for tobacco. Tobacco and whisky go together, and I offer the following in proof. About 20 years ago when the drug stores had the lawful right to handle whisky I had some whisky in Government bond in Kentucky. I released a barrel and when the barrel was empty I sawed it in two for a couple of tubs. In each end on the heads of the barrel, nailed to the inside of the heads was a one-pound plug of "old honesty tobacco," for each head. My opinion of the purity of "Kentucky whisky" was somewhat shaken.

(Not for print under my name.)

THE NEW SWEET CLOVER GROWING WILD IN NEW CASTLE, DEL.

I am enclosing two samples of what I have gathered for sweet clover, white and yellow variety (annual). Will you kindly examine and either confirm or deny my judgment regarding the samples?

H. E. WILLIAMS.

Care Newlyn Hotel, New Castle, Del.

On receipt of the above we sent for more specimens of the new clover. I knew that the height of the white variety depended on whether it was really the new that is making such a stir just now. And in reply he sent us a photograph of one of the plants and a letter, which we give below.

Dear Mr. Root:

In reply to your inquiry as to the height of bush the specimen came from, I am sending you one of three branches taken from a single root of the white species. The yellow grew about 30 inches high, but it was all gone by the second week of August. No Christmas tree ever looked prettier to me than did that stock of white sweet clover with its branches filled with blossoms and seeds. When I stood it up in my room the folks inquired what kind of a "weed" that was, and when I told them it was the bees' Christmas tree there was some mirth and laughter. Then they told me, as they have many times before, that I was "bug-house and bee crazy;" but that did not hurt me, and I joined them in a laugh at their ignorance for they call it "gummer" and say it is a curse to the farmers "down the State."

HARRY E. WILLIAMS.

New Castle, Del., Oct. 19, 1920.

Along with the cut giving the above he sends us what he calls "one of the branches." Well, this "branch" when spread out on the floor is a trifle over 9 feet. Now, if this plant pictured above grew from the seed in the one season just past, it is certainly the new variety. He furthermore states in his letter that " more than half a bushel of this white sweet clover seed has been secured."

NOT ONLY, "A LAND FLOWING WITH MILK AND HONEY;" BUT EGGS ALSO.

Just now it would look as if nobody knows what this new sweet clover may ultimately amount to. Here in Medina I have been trying to get the chickens to eat sweet clover; but there is such a vast variety of green stuff that they have not as yet "acquired the appetite." Down in my Florida home chickens eat everything green—even potatoes. Unless they are carefully fenced off they greedily grab every potato sprout as soon as it is visible above ground. Now I have not tried it yet, but I feel sure they will get a large part of their rations from this new sweet clover if permitted to do so.

The letter below is what gives me faith:

I am sending you some pictures and results of an experiment with the annual sweet clover here in British Columbia. I planted the seed in a chicken run, and when the plants were three or four inches tall chickens were turned in on the clover and kept it cropped down close to the ground all summer. In August I transplanted a few plants.

(The picture I am sending you is of one single plant grown 46 inches tall in 80 days.)

They came right on and came into bloom in a few weeks' time and have been in bloom right up to present date, Oct. 20, and look like remaining in bloom for some weeks to come. The above results will show that this clover will stand pasturing close, and still thrive and produce a good crop in the fall, and also set seed if given a chance. Chickens are very fond of it as a green food. The remainder of the plants in the chicken run I am watching to see if they will winter over and bloom early next year.

It has been a very dry summer here, and this fall has been very cold and wet. But this unfavorable weather has not affected the growth of this clover in the least. I will let you know later whether this plant winters over here.

W. P. LONG.

1970 Kingsway, Vancouver, B. C., Oct. 20, 1920.

NOTES OF TRAVEL

"A PENNY SAVED IS A PENNY EARNED."

Well, today is the 4th of November and we haven't started on our Florida trip yet, but expect to start tomorrow morning; and, by the way, a few days ago it cost us $4.00 for a room at a hotel, with two beds, in the city of Delaware, O. Then it cost another dollar to put our automobile ‘‘where thieves do not break thru and steal.’’ Well, in order to cut down, a little, expense like the above in traveling, Huber has recently purchased ‘‘an outdoor sleeping tent for tourists.’’ It hitches on to the auto, and makes a most comfortable bed, as I am just now well able to testify, because I have had a most refreshing nap right outdoors in a strong northwest wind. In fact, I greatly prefer it to any ‘‘steam heat, hot and cold water, bath included,’’ that costs $4.00 for just lodging. This sleeping tent is abundantly protected from rain, wind, or frosty air, even for an old man like myself. If it's really true that ‘‘a penny saved is a penny earned,’’ one might get rich and have the fun of traveling, and see Uncle Samuel's dominion at the same time.

In addition to the above we have a little stove or radiator that is warmed by the exhaust from the engine. The beauty of it is that there is a dial with a little hand that can be moved to give any degree of heat that may be desired according to the weather; and another beauty of it is that, like the outdoor sleeping-tent, the *fuel* costs nothing. In fact, we rather decided that the engine gave a little *more* power when the exhaust went thru the heater than otherwise. The heater is called ‘‘Perfection,’’ and can be had at any city garage.

We started on Saturday, November 6. Just before leaving I went into the printing department, and ‘‘Barney,’’ the ‘‘boss printer’’ on Gleanings, asked: ‘‘Mr. Root, are you expecting to travel on Sunday on this trip?’’

Barney has been in my employ over 50 years, and naturally knows me and my habits pretty well. We expected to start the day after election, but Saturday morning was the best we could do. With no Sunday travel we must be out two Sundays and I replied:

‘‘Barney, I shall surely attend church and Sunday school wherever I am, if able. In the afternoon we may travel some. I have not as yet decided.’’

Well, dear friends, *one* Sunday has passed in a most happy way, and we did not travel at all.* Ernest got in touch with a legal friend at Newark, O., Mr. J. H. Miller, a member of the Civic Reform Union. Mr. Miller, like the centurion of holy writ, has ‘‘builded a synagogue.’’ We attended worship in the new church just dedicated about a week ago.

Mr. Miller was the leader of the dry fight, about 10 years ago, when poor Etherington gave his life, as a martyr, to the cause of prohibition.

Business called us first in the southwestern part of Ohio, where I enjoyed seeing the wonderful crops of corn harvested. Then we went over to that beautiful National Pike that goes from Columbus, Ohio, to Washington, D. C. It is the most perfect highway for automobiles, for *hundreds of miles*, I was ever on. The riding up and down and around the great hills of eastern Ohio was to me an unceasing inspiration. Of course, the hills took more gasoline and more time. I was pained to see so little use made of these hills for fruit or agriculture, but it may come in time. Over in Pennsylvania we found most beautiful apples all along the highway, and right on the peak of one of the highest ‘‘passes’’ (2800 feet high) the finest glittering red Spitzenbergs were sold ‘‘two for a nickel,’’ and they were big ones, too.

I told you we were going to carry along a sleeping tent. Well, we have now been out five nights, and ‘‘E. R.’’ decided we were too far north for a man 81 years old to ‘‘camp out,’’ and here comes a problem that troubles me. Mrs. Root has always given me a clean place to sleep, wash, etc. Well, she and the three matronly daughters enjoined E. R. to carry it out, ‘‘regardless of expense.’’ One night the best we could do was a room for two, not first-class, which cost $2.00. Next time a room with bath and steam heat, $4.00. Next in a bigger city, $6.00. This latter would have been $3.50 for *one person*. The above is for room alone, with no meals. After much experience, Ernest declares anything cheaper will expose us to filth and possibly disease. Would it not be well if that ‘‘commission’’ to consider the ‘‘high cost of living,’’ should consider ‘‘the high cost of a decent place to sleep?’’

Let me go back a little. When crossing the highest mountains, I had the earache, and later there was a queer snapping in my ears. As it was rather cold weather, I had a slight chill; but a high-priced room at night with steam heat to warm me up, and a hot bath in the morning (until the sweat dropped from the end of my nose) made me all right the next day. It was not until 24 hours later that I recalled the same snapping in my ears in crossing the Rocky mountains years ago.

Tonight (Nov. 10) I am once more in a high-priced room, at Fredericksburg, Va.

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*‘‘A Sabbath well spent bringeth a week of content,’’ etc.

Classified Advertisements

Notices will be inserted in these classified columns for 30c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISEMENTS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued while they are in good standing.)

Heard & Woodhull, Vollmer & Demuth, Fred Telshow, W. W. Talley, Spokane Seed Co., Bert Smith, C. W. Phelps & Son, J. B. Notestein, Michigan Honey Producers, G. H. Merrill, L. C. Mayeux, F. W Lesser, Allen Latham, E L. Lane, Chas. B. Hatton, Alfred W. Fleming, The Farmer Apiaries, W. B. Crane.

HONEY AND WAX FOR SALE

HONEY in barrels, 16c a lb. J. Gakler, Memphis, R. D. No. 1, Tenn.

FOR SALE.—Light honey, two 60-lb. cans to a case. I. J. Stringham, Glen Cove, N. Y.

FOR SALE—Very choice white clover extracted honey in 60-lb. cans. Noah Bordner, Holgate, Ohio.

FOR SALE—Clover and buckwheat honey in 60-lb. cans. Bert Smith, Romulus, N. Y.

FOR SALE—Choice white clover honey in 60-lb. cans—none finer. J. F. Moore, Tiffin, Ohio.

FOR SALE—Very fine quality basswood-milkweed (mostly milkweed) honey in 60-lb. cans.
P. W. Sowinski, Bellaire, Mich.

FOR SALE—White clover and basswood blend honey in new 60-lb. cans, two in case. Sample 20c.
Geo. M. Sowarby, Cato, N. Y.

FOR SALE—Buckwheat honey in new 60-lb. cans, two to the case and 160-lb. kegs.
B. B. Coggshall, Groton, N. Y.

FOR SALE—Clover honey with slight basswood blend, new 60-lb. cans; also buckwheat, 60-lb. cans.
H. F. Williams, Romulus, N. Y.

FOR SALE—White and amber honey in 5-lb. pails, packed in cases of 12.
R. C. Wittman, St. Marys, Pa.

FOR SALE—One ton clover-basswood honey in 5-lb. pails, 25c a lb. Also fall honey in 60-lb cans.
H. S. Ostrander, Mellenville, N. Y.

FOR SALE—Well-ripened raspberry-clover blend honey in 60-lb. cans. Two cans to case, 25c a lb.
Fred Telshow, Waymart, Pa.

FOR SALE—Finest quality extracted clover honey in 10-case lots. Write for prices.
Chalon Fowls & Co., Oberlin, Ohio.

FOR SALE—Clover and buckwheat extracted honey. Well ripened. Put up in new 60-lb. cans and 5 and 10 pound pails.
H. B. Gable, Romulus, N. Y.

FOR SALE—Well-ripened, thick and rich white-aster honey in 120-lb. cases at 20c f. o. b. Brooksville, Ky. Sample 25c.
H. C. Lee, Brooksville, Ky.

For best table honey try a case of Weaver's sweet clover Spanish needle blend, none better. Price 18c in 60-lb. cans. Joe C. Weaver, Cochrane, Ala.

FOR SALE—Finest Michigan basswood and clover honey, well-ripened and of good flavor, put up in 60-lb. cans and 5 and 10 lb. pails.
A. S. Tedman, Weston, Mich.

FOR SALE—White clover honey, almost water white. Put up in new 60-lb. tin cans, two to the case. Write for prices.
D. R. Townsend, Northstar, Mich.

FOR SALE—Finest Michigan raspberry, basswood, and clover honey in 60-lb. cans, 25c per pound. Free sample.
W. A. Latshaw Co., Clarion, Mich.

FOR SALE—New crop extracted clover honey two 60-lb. cans to case, $30.00 per case; in 5-lb. pails, $1.50 per pail; packed 12 pails to case or 30 to 50 pails per barrel. H. G. Quirin, Bellevue. O.

FOR SALE—660 lbs. of white clover honey in gallon cans at 25c a lb. f. o. b. Bellevue. Terms, cash with order.
N. B. Querin, R. D. No. 7, Bellevue, Ohio.

FOR SALE—White honey in 60-lb. cans, sample and price on request. Also white clover comb, 24 sections to case. The A. I. Root Co., Inc., 23 Leonard St., New York City.

Extracted honey. New crop white sage, white orange 20c a lb., L. A. alfalfa 15c, white Haitien 12c, amber 11c, Chilian 10c. Beeswax 30c.
Walter C. Morris, 105 Hudson St., New York City.

FOR SALE—Cabbage palmetto honey, fine quality, in barrels 15c, in 5-gal. cans $2.00 per gallon, in 5-lb. pails $1.00 f. o. b. Florida.
Ward Lamkin, Arcadia, Fla.

FOR SALE—10,000 lbs. A1 quality white sweet clover honey, in new 60-lb. cans. Will sell in quantities to suit. Sample free.
W. D. Achord, Fitzpatrick, Ala.

FOR SALE—Choice clover extracted honey in 60-lb. cans, two to the case, $24 per case. Selected No. 1 comb honey, 24 sections to case, eight cases to carrier, $60 per carrier.
J. D. Beals, Oto, Iowa.

FOR SALE—Clover, basswood or buckwheat honey, comb and extracted, by the case, ton, or carload. Let me supply your wants with this fine N. Y. State honey.
C. B. Howard, Geneva, N. Y.

EXTRACTED HONEY—New Western white clover, two 60-lb. cans to case, 20c a lb.; light amber extracted, 2 cans to case, 18c a lb.; extra light Haiti honey, 400-lb. bbls., 14c a lb. All f. o. b. New York, immediate shipment.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE—Clover extracted honey of unsurpassed quality; new cans and cases, prompt shipment. You will be pleased with "Townsend's quality" extracted honey. Not a single pound extracted until long after the flow was over; thus the quality. Would advise intending purchasers to order early, as we have only a half crop. Address with remittance.
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

Quote me your best price on clover honey in 60-lb. cans. E. C. Pike, St. Charles, Ills.

BEESWAX WANTED—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED—Bulk comb, section, and extracted honey. Write us what you have and your price.
J. E. Harris, Morristown, Tenn.

WANTED—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

BEESWAX WANTED—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax, and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address, so we can identify it immediately upon arrival, and make prompt remittance.
The A. I. Root Co., Medina, Ohio.

We buy honey and beeswax. Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to case. Extracted honey, quantity, quality, how packed and send samples.
Chas. Israel Bros. Co., 486-490 Canal St., New York City.

FOR SALE

HONEY LABELS—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

ROOT'S goods at Root prices. A. W. Yates, 3 Chapman St., Hartford, Conn.

FOR SALE—Barnes foot power saw, used very little, $50.00. E. E. Lawrence, Doniphan, Mo.

FOR SALE—One-pound jars in two-dozen cases, ten cases or more at $1.75 per case, f. o. b. factory. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE—Annual sweet-clover seed, garden-grown, hand-stripped, 1 oz., 50c. Supply limited. Order early. S. Rouse, R. D. No. 2, Ludlow, Ky.

FOR SALE—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

ROOT'S BEE SUPPLIES—For the Central Southwest Beekeeper. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FOR SALE—8-frame supplies, 20 colonies bees and 40 supers with foundation, 1 Hatch wax press. Best offer. No disease.
Hickory Shade Apiary, Otterville, Mo.

FOR SALE—To reduce stock, crates of 96 one-gallon cans, with bails and three-inch screw caps, at $17.50 per crate f. o. b. Grand Rapids.
A. G. Woodman Co., Grand Rapids, Mich.

Sell your wares with Sign Boards, the silent salesmen. Plan now to sell next year's crop with them. Signs made to order. Prices reasonable. Satisfaction guaranteed. Investigate.
H. A. Schaefer, Osseo, Wisc.

FLORIDA BEEKEEPERS—You can save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE—Good second-hand double-deck comb-honey shipping cases for 4¼ x 4¼ x 1⅞ sections, 25c per case, f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

FOR SALE—Comb foundation which satisfies the most particular beekeeper. Wax worked at lowest rates. E. S. Robinson, Mayville, N. Y.

PORTER BEE ESCAPES save honey, time and money. Great labor-savers. For sale by all dealers in bee supplies.
R. E. & E. C. Porter, Lewistown, Ills.

FOR SALE—Genuine White Annual Sweet Clover. Garden-grown on our grounds and guaranteed pure. New crop seed, 1 lb., $5.00; ¼ lb., $1.50; 1 oz., 50c, all postpaid.
Henry Field Seed Co., Shenandoah, Iowa.

FOR SALE—Ten 10-frame Root KD hives; 10 10-frame extra hive bodies; 25 lbs. medium brood foundation; 200 frames; 10 10-frame queen-excluders, good as new. Will sell at a bargain. Inquire of H. C. Green, 939 West River, Elyria, Ohio.

FIVE-GALLON SECOND-HAND CANS — Buy supply now for next season as price advancing. In good condition, two to a case, 50c per case or 100-case lots at 40c per case f. o. b. New York.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, $2.00; six, $8.00; doz., $15.00; tested, $4.00; breeders, $5.00 to $20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE—500 pounds of Dadant's light brood foundation for Hoffman frames, put up in boxes holding 50 pounds net. This foundation is in the best of shape, the same as I received it. I will not accept orders for less than one box. Price, 75c per pound. M. E. Eggers, Eau Claire, Wisc.

FOR SALE—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash, and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE—An old good book, "The Winter Care of Horses and Cattle," by a great farmer, the late T. B. Terry. Mr. A. I. Root urged Mr. Terry to write this book, and he wrote the publisher's preface for the work. Any one who owns a cow or horse should own this book. We now have left only 150 copies of this paper-covered booklet of 50 pages. These we will sell to the first 150 people who send us 20c for a copy.
The A. I. Root Co., Medina, Ohio.

REAL ESTATE

LOCATION FOR SALE—Four acres, good six-room house, barn and store house in Alapaha, Ga. Good town, healthful and never-fail bee location. Could include 100 colonies bees in the best condition. Priced to sell. S. E. Jones, Alapaha, Ga.

WANTS AND EXCHANGE

WANTED—Several bee-outfits (preferably near home). H. G. Quirin, Bellevue, Ohio.

WANTED—Foot-power lathe and foot-power saw.
John Rick, Reading, Pa.

WANTED—To rent small fruit farm with suitable place for poultry and bees. Will buy apiary in connection. Location preferred, Iowa or northern Missouri. Write Box 231, Greeley, Iowa.

OLD COMBS WANTED—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

WANTED—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED—A Barnes saw outfit for cash. Describe fully age, etc., tools if any.
B. S. Underhill, Litchfield, Ohio.

WANTED—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, O.

WANTED to correspond with parties having bees in 10-frame standard hives, that will lease them on shares. Will give good contract and references. Have a good location in southwest Iowa.
W. A. Jenkins, 144 Simmons St., Galesburg, Ills.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens, $1.00 each.
W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, $1.25 each; dozen, $12.00. E. A. Simmons, Greenville, Ala.

PACKAGE BEES—On all orders booked before Jan. 1, 1921, with cash in advance, I will make 1920 prices. E. A. Harris, Albany, Ala.

FOR SALE—30 stands of bees, $9.00 each; 8-frame hives. No disease. Bargain to early buyers.
H. D. Hopkins, Otterville, Mo.

PACKAGE BEES and PURE ITALIAN QUEENS. Booking orders now for spring delivery. Circular free.
J. E. Wing, 155 Schiele Ave., San Jose, Calif.

FOR SALE—Vigorous leather-colored Italian queens, famous three-banded stock. Bees in two and three-pound packages. Write for information and prices for 1921. Shipments begin about May 1.
C. M. Elfer, St. Rose, La.

I am ready now to book your orders for bees in 2 and 3-pound packages for next May and June delivery, also 3-banded Italian queens and nuclei. Write for price list.
C. H. Cobb, Belleville, Ark.

We are now booking orders for early spring delivery of two and three frame nuclei, with untested or tested queens. Write for prices and terms. We also manufacture cypress hives and frames.
Sarasota Bee Co., Sarasota, Fla.

FOR SALE—Three-banded and golden queens and bees in comb packages for spring delivery. No disease. Safe arrival and satisfaction guaranteed. Try me for price, quality and service.
M. Voinche, Bunkie, La.

I am now booking orders for three-banded Italian queens and nuclei for spring delivery. Untested queens, April 1 to May 1, $1.25 each. May 1 to July 1, $1.00. Discount on large orders. Nuclei, one three-frame, $4.50; 50 or more, $4.00 each.
L. R. Dockery, Carrizo Springs, Texas.

FOR SALE—Three-band leather-colored Italian bees and queens, two-pound packages only. Shipping season from April 15 to May 20. Safe arrival and satisfaction guaranteed. No disease. Order early if you wish prompt delivery. Write for price list.
J. M. Cutts, Montgomery, R. D. No. 1, Ala.

DAY-OLD QUEENS—Superior improved Italians. Mailed in safety-introducing cages. Safe arrival and satisfaction guaranteed anywhere in the U. S. and Canada. Send for circular. Order in advance. Prices, April to October: 1, 75c, 12, $7.20; 100, $60.
James McKee, Riverside, Calif.

BEES BY THE POUND — Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Callallen, Texas. E. B. Ault, Prop.

The A. I. Root strain of leather-colored Italians that are both resistant and honey-gatherers. These queens and bees need no recommendation for they speak for themselves. Orders taken now for next season. Untested, $1.50; selected untested, $2.00; tested, $2.50; select tested, $3.00. Circular free. For larger lots, write,
A. J. Pinard, Morgan Hill, Calif.

FOR SALE—Pure Italian queens, Golden or leather-colored, packages and nuclei; 1 untested queen, $1.50; 6, $7.50; 12, $13.50; 50, $55.00; 100, $100; virgins, 50c each; packages 24 and under, $2.25 per pound; 25 and over, $2.00 per pound; nuclei, 1-frame, $4.00; 2-frame, $6.00; 3-frame, $7.50; queens extra. One-story 10-frame colony with queens, $12.00. Golden Star Apiaries, R. 3, Box 166, Chico, Calif.

HELP WANTED

WANTED—Young man, good character, worker, wants work in modern apiary to learn business. Any location, start any time.
J. F. Elliott, 45 So. Portland Ave., Brooklyn, N. Y.

We need here in January for established apiary work, a proficient beekeeper. Conditions and prospects goods. Write full details. E. L. Sechrist, Monte Cristi, Dominican Republic, West Indies.

WANTED for the season of 1921 an experienced queen-breeder. State experience had, reference, age, height, weight.
W. J. Forehand & Sons, Ft. Deposit, Ala.

WANTED—Two industrious young men to help in our bee business for the season of 1921. Begin work March 1. Good chance to learn the bee business. The Farmer Apiaries, Ramer, Ala.

WANTED—Young man to learn queen and package business, will pay small wages and furnish board. Will increase wages as party learns business. To begin March 1.
J. M. Cutts, Montgomery, R. D. No. 1, Ala.

SITUATIONS WANTED

A young man, 26, single, college graduate, becoming interested in bees and honey wishes to connect himself with a concern of that nature. At present employed on foods. Can furnish very good reference. Julius Nemetz, Mt. Carroll, Ills.

Books and Bulletins

DADANT'S SYSTEM OF BEEKEEPING.

This is the title of a new book by C. P. Dadant, covering completely the Dadant system of keeping bees with the large hives which they have used for so many years with such success. In view of the fact that large hives, and that means big colonies, are now beginning to receive the attention that they properly merit, we believe that this work will be well received. It is well printed, nicely illustrated, and covers 115 pages.

Special Notices by A. I. Root

"PLANNING THE FARMSTEAD."

The above is the title of a most valuable farmers' bulletin, No. 1132, sent by the Department of Agriculture. In the near future farming is going to be managed somewhat as we manage our great manufacturing enterprises. When I was a child, one of seven in our family—three older and three younger—we used to get our water from a spring at the bottom of a hill. It was very nice soft water, but it had to be lugged a sixteenth of a mile uphill. After a while we built a cistern; but the cold spring water we so much preferred for drinking that we seven children had exercise "a-plenty", in carrying water uphill.

Well, there are not always seven children in the family. Oftentimes the overworked farmer's wife has to carry the water. But the time is coming when the farmer's wife will have running water right in the kitchen, and, perhaps, both hot and cold.

This matter of providing good water near at hand without any great outlay of money to get it, is only one of a dozen or more things to be considered. Having a house away back from the highway I used to think was a big blunder. But this bulletin gives some very good reasons for the house being a certain distance away from the highway. I used to think, too, that (to save steps) the barn and outbuildings should be close to the dwelling. The bulletin makes some suggestions why horses, cows, and chickens should not be very close to the dwelling, and suggests that the vegetable garden should be between the two. It also discusses the arrangement of buildings and a lot of other things of vital importance that every farmer, and especially the farmer's wife, will recognize and assent to when they read about it. Of course we can not well *change* buildings, roads, wells, etc., that are already located; but there are certain things that can be changed to save useless travel, etc., without very much trouble or expense.

This bulletin has eight illustrations and 24 pages. For a copy write to the Department of Agriculture, Washington, D. C., asking for the above.

ORDERS NOW BOOKED

for 1921 shipments of bees and queens. Send for descriptive circular and price list.

R. V. STEARNS,
Brady, Texas.

PATENTS Practice in Patent Office and Court
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C,

For Immediate Sale!

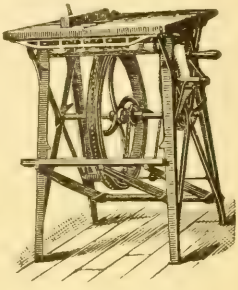
We have a quantity of 5-lb and 10-lb. pails on hand. Write us at once for prices. We will make them right.

THE A. I. ROOT COMPANY OF IOWA
Council Bluffs, Iowa.

EVERGREENS Hill's Hardy Tested Varieties

Fine for windbreaks, hedges and lawn planting. All hardy, vigorous and well rooted. We ship everywhere. Write for free Evergreen book. Beautiful Evergreen Trees at moderate prices.

D. Hill Nursery Co., Box 246 Dundee, Ill.



BARNES'
Hand and Foot Power
Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices.

W. F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS

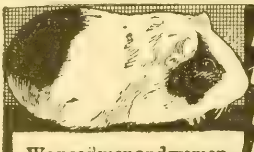
INDIANOLA APIARY

will furnish 3-banded Italian bees and queens: Untested queens, $1.00 each; tested, $1.50 each. One pound bees, no queen, $2.00. No disease.

J.W.SHERMAN,VALDOSTA,GA.

SWEET CLOVER 4.50 BU.

Unhulled White Blossom Sweet Clover. For winter or early spring sowing. Builds up land rapidly and produces heavy Money Making Crops while doing it. Excellent for pasture and hay. Easy to start. Grows on all soils. Have Hulled Scarified Seed at Low Prices. Sold on a Money Back Guarantee. Write today for Big Seed Guide. **Free.**
American Mutual Seed Co. Dept. 951 **Chicago, Ill.**



Raise Guinea PIGS- FOR US!

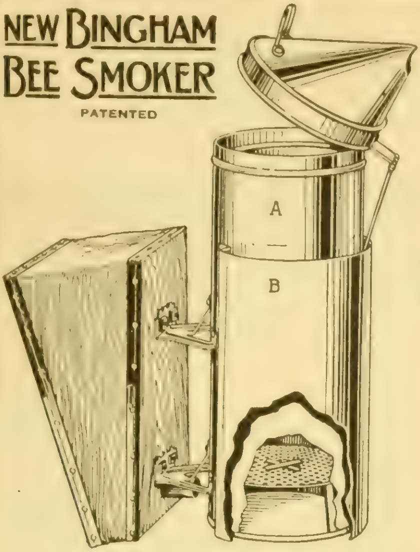
We need men and women, boys and girls everywhere to raise Guinea Pigs for us. We tell you where to get them, show you how and buy all you raise. Big opportunity for money making. Thousands needed weekly.

Easy to Raise—Big Demand Large Profits No special knowledge, experience or equipment needed. They breed the year round—are very prolific—require but little space or attention. Pay better than poultry or squabs—cost less to house, feed, keep, easier raised—less trouble, market guaranteed.
Particulars, contract, and booklet how to raise FREE
CAVIES DISTRIBUTING COMPANY
3145 Grand Avenue, Kansas City, Mo.
Largest Guinea Pig breeders and distributors in America.

Beekeepers NO DOUBT YOU WANT TO SAVE MONEY ON YOUR BEE SUPPLIES FOR NEXT SPRING. NOW IS A GOOD TIME TO DO IT. TAKE ADVANTAGE OF OUR DECEMBER DISCOUNT AND WRITE TODAY FOR PRICES AND CATALOG. OUR PRICES WILL SAVE YOU MONEY. ALL MATERIAL AND WORKMANSHIP GUARANTEED. TEXAS BEEKEEPERS SHOULD ADDRESS A. M. HUNT OF GOLDTHWAITE, TEXAS. HE SELLS THE BEST. LEAHY MFG. CO., Higginsville, Mo.

NEW BINGHAM BEE SMOKER

PATENTED



The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey producers in the World. It is now made in five sizes.

Postage extra	Size of stove inches.	Shipping weight lbs.
Big Smoke, with shield......	4 x10	3
Big Smoke, no shield........	4 x10	3
Smoke Engine	4 x7	2¼
Doctor	3½x7	2
Conqueror	3 x7	1¾
Little Wonder	3 x5½	1½

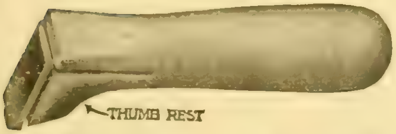
The Big Smoke has just been produced in response to a demand for a larger-size smoker, one that will hold more fuel, require filling less often, from extensive bee handlers.

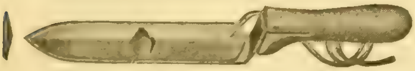
East Lansing, Mich., May 10 ,1920.

A. G. Woodman Co., Grand Rapids, Mich.

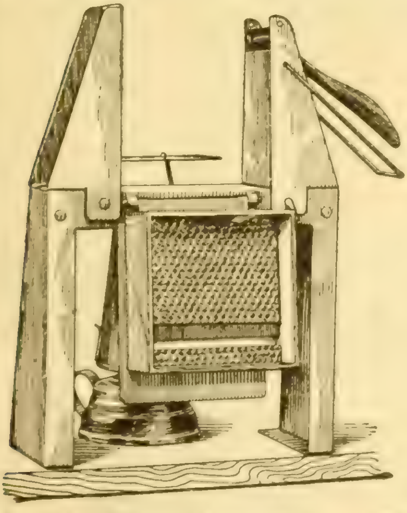
Dear Mr. Woodman:—I have now had several weeks' opportunity to try out the New Smoker called the Big Smoke, with the guard about the fire pot. The smoker is even more than I anticipated and unless something else is brought out that is still better, you can be assured that this particular one will be standard equipment for this place from now on.

B. F. Kindig,
State Inspector of Apiaries.





The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

TIN HONEY PACKAGES

2 lb. Friction top cans, cases of 24.
2 lb. Friction top cans, crates of 612.
2½ lb. Friction top cans, cases of 24.
2½ lb. Friction top cans, crates of 450.
5 lb. Friction top pails, cases of 12.
5 lb. Friction top pails, crates of 100.
5 lb. Friction top pails, crates of 200.
10 lb. Friction top pails, cases of 6.
10 lb. Friction top pails, crates of 100.

Ask for our special money-saving prices, stating quantity wanted.

Send us an itemized list of your requirements and let us figure on your goods for 1921. Our new catalog will be issued about Jan. 1.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

Sell Your Crop of Honey to

Hoffman & Hauck, Inc.
Woodhaven, N. Y.

No Lot too large or small, and Purchase your

Containers, Prompt Shipment

2½-lb. Pails, case 2 doz..... $1.90 each
Crates of 100 $ 7.25
5-lb. Pails, case 1 doz....... $1.80 each
Crates of 100 $11.00
10-lb. Pails, case ½ doz..... $1.60 each
Crates of 100 $17.50
5 gal. cans used 2 to case.... 50c case

WHITE FLINT GLASS JARS, SCREW CAPS

Qt. Honey 3-lb. size 1 doz. cartons $1.25 each
1-lb. " 2 doz. " 1.70 each
½-lb. " 3 doz. " 2.00 each

QUALITY BEE SUPPLIES FROM A RELIABLE HOUSE

Without fear or favor I place my BEE WARE and SERVICE before you.

It is the small annoyances that often grow into disastrous results. Avoid the so-called "little losses" by using MONDENG'S goods. Quality is first—save time when you put goods together by getting supplies that are accurately made. Service is next—no delays when bee supplies are ordered from my factory.

I am ready to meet urgent needs. Send for my latest price-list.

CHARLES MONDENG
146 Newton Ave. N. and
159 Cedar Lake Rd.
MINNEAPOLIS, MINNESOTA.

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE
From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway,
If you have not received 1920 catalog send name at once.

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

9-oz. Taper Jar

SPECIAL SALE OF

HONEY JARS

We have a surplus stock of taper jars, holding 9 ounces, put up two dozen in a case, including lacquered tin tops, at our Philadelphia branch. The cost of these jars has more than doubled in the past three years. We offer for a short time the surplus stock available at 85 cents per case, $8.00 for 10 cases, $75.00 for 100 cases. Prices f. o. b. Philadelphia.
Send your order direct to

THE A. I. ROOT COMPANY
Medina, Ohio

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck
The Comb-foundation Specialist
Augusta, Kansas
Established 1899

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 1283

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.,
1233-1283 **Pike St., Cincinnati, O.**

FREE Samples & Roofing Book

FOR SALE—5000 fences for 4 x 5 x 1⅜ sections to be used with slats, $4.00 per 100; 50 ten-frame Danzenbaker comb honey supers, nailed and painted, good as new, $2.00 each; 500 Alexander feeders, 30c each, f. o. b. Montgomery.

J. M. Cutts, Montgomery, Ala.

Large, Hardy, Prolific Queens

Three-band Italian only. Pure mating and safe arrival guaranteed.

One, $1.30; 6, $7.50; 12, $13.50; 100, $110.00

Buckeye Bee Co., Lock Box 443 **Massillon, Ohio**

SPECIAL SALE OF PRIVATE TUMBLERS

6½ Oz. Private Tumbler.

We have a surplus stock of private tumblers, holding 6½ ounces, put up two dozen in a case, including tin tops, at our Philadelphia branch. The cost of these tumblers has more than doubled in the past three years. We offer for a short time the surplus stock, available at 80c per case, $7.50 for 10 cases, $70.00 for 100 cases. Prices F. O. B. Philadelphia.

Send your order direct to

THE A. I. ROOT CO.,
Medina, Ohio.

GRASS SEED

FREE SAMPLES

Wonderful Value
Wholesale Prices
Highest Quality

Don't fail to investigate these bargains. Recleaned Tested Timothy **$3.95** bu. Sweet Clover unhulled, **$4.50** bu. Alsike Clover & Timothy **$5.85** bu. Sudan Grass **8**1-2c lb. Prices cover some grades of limited quantities. Clover and other Grass & Field Seeds at low prices. All sold subject to State or Government Test under an absolute **money-back guarantee.** We specialize in grass and field seeds. Located to save you money and give quick service. We expect higher prices-Buy now and save big money. Send today for our money-saving Seed Guide, explains all-**free.**

American Mutual Seed Co. Dept. 651 **Chicago, Ill**

BEEKEEPERS!

Place your order for Supplies NOW and take advantage of the Early Order Cash Discount, 5 per cent for December, 4 per cent for January. Our stock of Standard Hives, Supers, Hive Bodies, Brood Frames, Foundation, and all other Standard Goods is complete. "If you want the Cheapest, buy the Best."

Our Aim is to give Prompt Service, Highest Quality, and Guaranteed Satisfaction to our customers. Send us a trial order; we feel confident you will be satisfied.

Our annual catalog will be ready for mailing, January, 1921. It's free for the asking.

AUGUST LOTZ COMPANY, BOYD, WIS.

Tin Containers

A Complete Line. Your Orders Solicited for

Friction-Top Cans and Pails

Five-Gallon Square Cans
With Screw or Solder Cap

Packers' Cans
Open Top or Hole and Cap Styles

Wax Sealing Preserving Cans

Unexcelled manufacturing and shipping facilities.

W. W. BOYER & CO., INC.
Baltimore, Md.

IT IS GETTING NOISED AROUND that E. S. Robinson is turning out a first-class quality of comb foundation, and selling it at a price which means a big saving to the beekeepers.

-:- -:- -:-

Although my product has been on the market only two seasons, it has pushed its way to the front so rapidly that last season I found it necessary to turn down orders totaling thousands of pounds.

-:- -:- -:-

If you wish to make sure of your supply of foundation for the coming season, remember that you must **order early.**

-:- -:- -:-

I guarantee my foundation to be made of clean, pure beeswax, with perfect impression, and cut to exact size with all edges perfect.

-:- -:- -:-

Your own wax worked into foundation at lowest rates. Send for price list.

E. S. ROBINSON
Mayville, N. Y.

Our Food Page—Continued from page 734.

in cold water. When done pour on a buttered platter and when cool enough to handle pull until white, working in the vanilla while pulling it. This taffy will not crystallize as a plain sugar taffy is sure to do in a day or so, but as the surface becomes moist and sticky after standing it is well not to cut in pieces until shortly before it is to be eaten. If a chocolate taffy is desired, a square of chocolate or 2 tablespoons of cocoa may be added to it when boiling.

CARAMELS.

½ cup honey
2 cups light brown sugar
1 teaspoon vanilla
2-3 cup cream or evaporated milk.
1 cup chopped nuts

Boil the sugar, cream, and honey with as little stirring as possible until the thermometer registers 256 degrees F. or when it forms a firm ball when tested in ice-cold water; add nuts and vanilla and pour at once into a flat buttered pan or platter. When cold cut in squares with a sharp knife and wrap in waxed paper.

If the chocolate flavor is desired, grate a square of chocolate into the boiling syrup.

PANOCHE.

2 cups light brown sugar
⅛ cup (2 level tablespoons) honey
½ cup cream or evaporated milk
½ cup milk
1 cup chopped nuts
1 teaspoon vanilla

Boil the first four ingredients until the thermometer registers exactly 234 degrees F., remove from the fire and beat and stir until it begins to thicken, add the nuts and vanilla and beat until nearly cool, pour into a buttered platter and cut in squares when firm. 234 degrees is what is sometimes called the "thread" stage. The syrup will "hair" at 238 degrees, but should not be cooked that long for fudge or panoche.

POPCORN BALLS.

½ cup honey
2 cups sugar
2-3 cup water
2 teaspoons butter
¾ teaspoon salt
3 quarts popped corn

Cook the first 4 ingredients together until the thermometer registers 270 degrees F. or until a little tried in cold water is brittle. Pour slowly over the popped corn which has been sprinkled with the salt, mix well and form into balls, using as little pressure as possible. Either brown or white sugar may be used.

NUREMBERG LEBKUCHEN.

(Repeated by request.)

1 pt. (2 cups) brown sugar
1 pt. honey
1 pt. molasses
1 tablespoon butter
1 tablespoon lard
1 pt. sour cream
2 scant tablespoons soda
½ cup ground candied orange peel, lemon peel, and citron
1 cup nut meats chopped
1 tablespoon cinnamon
1 tablespoon ground cloves

Warm the butter and lard and mix with the sugar, honey, and molasses; add the sour cream in which the soda has been dissolved, the dry ingredients, and flour enough to make a stiff cooky dough; put in a cool place and leave 8 or 10 hours or until the next morning. Then roll out, cut in shapes, and bake in a moderate oven. A little more flour may be added in the morning if necessary to roll. When cold frost with an icing made from pulverized sugar and water and flavored with a little lemon. Put in stone jars, cover with paper, and tie and keep in cool place a month before using.

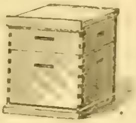
CHRISTMAS PUDDING.

1 cup suet chopped fine
1 teaspoon salt
1 cup honey
1 egg
½ cup raisins cut fine
½ cup dates cut fine or currants
¼ cup citron cut fine
1 cup sour milk
2½ to 3 cups sifted flour
1 teaspoon soda
1 teaspoon baking powder
1 teaspoon cinnamon
½ teaspoon cloves
grated rind of ½ orange

Blend the suet with the honey, beat in the egg, add the sour milk, and then the flour in which the other dry ingredients have been sifted, adding the fruit which has been dusted with a little of the flour last. The pudding should be about as stiff as fruit cake. Steam in well-oiled mold for three hours or more. It may be steamed in several small molds to be used as gifts.

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng. Golden Seal, Senega Root, Belladonna, and other unusual crops. $1.00 per year. Sample copy 10c. Address
Special Crops, Box G, Skaneateles, New York

BEE SUPPLIES



We are prepared to give you value for your money. Our factory is well equipped with the best machinery to manufacture the very best bee supplies that money can buy. Only the choicest material suitable for beehives is used. Our workmanship is the very best. Get our prices and save money.

-:-

EGGERS BEE SUPPLY MFG. COMPANY., INC.
Eau Claire, Wis.

Completely Destroys the Weed Growth

More than that, the BARKER breaks the hardest crust into a level, porous, moisture-retaining mulch *—all in the same operation.*

A ten-year-old boy can run it—do more and better work than ten men with hoes. Saves time and labor, the two big expense items.

BARKER WEEDER, MULCHER AND CULTIVATOR

Eight reel blades revolve against a stationary underground knife — like a lawn mower. **"Best Weed Killer Ever Used."** Works right up to plants. Cuts runners. Aerates the soil. Has leaf guards, and shovels for deeper cultivation—3 *garden tools in* 1.

FREE Illustrated Book

Tells how gardeners and fruit-growers everywhere are reducing their work; increasing their yields.—How to bring growing plants through a dry season.—How to conserve the moisture and force a larger, more rapid growth. Send TODAY for this free, illustrated book and special Factory-to-User offer.

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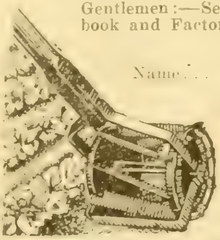

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NOTICE!

In our plans to make the equipment at Council Bluffs absolutely up-to-the-minute and complete in every way, so that we can serve western beekeepers even more promptly and completely, we are now installing an AIRCO FOUNDATION mill. We hope to be turning out that famous and supreme foundation on our mills in a few weeks. And we are going to use great quantities of wax in the process. Send us your combs or your rendered wax, and we will be glad to work it into AIRCO on trade basis, or remit cash if you prefer. We are paying top market prices, both in trade and cash. Let us send you a shipping tag, and quote on your next season's need in foundation.

THE A. I. ROOT CO. OF IOWA
COUNCIL BLUFFS, IOWA.

"Falcon" helps swell the nation's honey crop

The last honey crop of the United States is estimated 250,000,000 pounds, which at the present high prices means a value of fully $50,000,000,00. (News item.)

"Falcon" bees and bee supplies played an important part in the attainment of these figures.

"Falcon" reputation for quality is nationwide and universal. Exacting beemen depend upon "Falcon" for the success of their honey crops. We urge you to place orders now for early spring delivery.

We have an excellent dealer's proposition for beekeepers who wish to handle "Falcon" supplies. Write

FALCONER MANUFACTURING CONCERN
Falconer (near Jamestown) New York
Where the best beehives come from.

THE AULT 1921 BEE SHIPPING CAGE

Patent Pending

1st. It is a dark cage, much more so than the open screen cages we have been shipping in in the past.
2nd. The feeder uses pure sugar syrup. Better than Honey or Candy to ship on; it contains water as well as feed.
3rd. Feeders are made more substantial, 1-3 larger, and have screw cap that will not jar out.
4th. Instead of one small hole, we now use a cotton duck washer in the screw cap that has proven to overcome all the objections found to the liquid feed method.
5th. The Cage is one piece screen wire protected by thin boards on the outside.

Send for free circular describing the cage in detail, prices, etc.

Queens---Package Bees---Queens

ORDERS ARE COMING DAILY FOR 1921 SHIPPING.

4 per cent Cash Discount for Nov., 3 per cent for Dec., 2 per cent for Jan. on all orders. Or will book your order with 20 per cent down, balance just before shipping. My Free Circular gives prices in detail, etc. Safe delivery Guaranteed within 6 days of shipping point. We ship thousands of pounds all over U. S. A. and Canada.

1-pound pkg. bees $3.00 each, 25 or more $2.85 each.
2-pound pkg. bees $5.00 each, 25 or more $4.75 each.
3-pound pkg. bees $7.00 each, 25 or more $6.65 each.
F. O. B. Shipping Point. Add price of queen wanted.

1 Untested Queen, $2.00 each; 25 or more ....$1.75 each
1 Select Unt. Queen, $2.25 each; 25 or more ....$2.00 each
1 Tested Queen, $3.00 each; 25 or more ....$2.70 each
1 Select Tested, $3.50 each; 25 or more ....$3.00 each

NUECES COUNTY APIARIES

CALALLEN, TEXAS
E. B. AULT, Proprietor

Merry XMAS Mr. Beekeeper

After a prosperous season, you are planning to celebrate by having an extra Merry Christmas. We wish you all the best and merriest of times for this joyous season.

We are now beginning our 1921 season, and the wise beekeeper will realize that this is the time to send in his order. Why wait until the "rush" begins and so many orders are coming in.

We have just sent in our stock order, and shipments will soon be on the way. We shall have lots of foundation and other goods on hand.

Send in your order now, and we can give you the very best of our attention.

Write us for quotations, send for our catalog, we are always glad to receive inquiries.

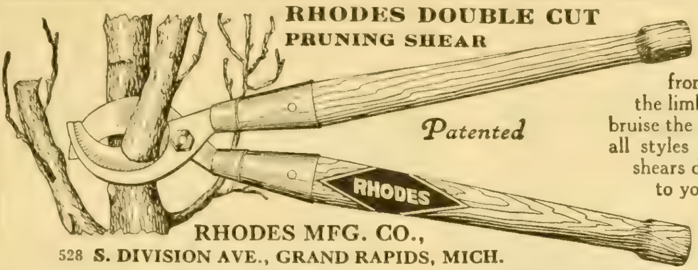
We allow 5% early order discount for this month.

SEND IN YOUR ORDER NOW.

F. A. Salisbury

1631 West Genesee Street
Syracuse, N. Y.

RHODES DOUBLE CUT
PRUNING SHEAR



Patented

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door.

Write for circular and prices.

RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.

QUEENS

In announcing our policy for 1921, we feel that the few changes we make will be to the mutual advantage of our customers and ourselves. The demand for our queens has become such that we will discontinue the sale of bees in packages, and will devote all our time and attention to rearing and developing our strain of Italians that have proved so satisfactory to our customers in the past. We will sell but **ONE GRADE OF QUEENS**, and that **THE VERY BEST** that we are capable of producing. Our original stock was procured from Mr. Doolittle and by constantly breeding for desirable qualities, and by rearing all queens under the most favorable conditions, queens of high standard are the result.

WE ARE NOW BOOKING ORDERS for 1921 delivery, and those wishing to get queens at any specific date should place orders early, as we fill orders in rotation. Our shipping season is from May 15 to Oct. 15.

EVERY QUEEN is reared by me personally, and by me inspected before I put her into the mailing cage. Safe arrival, pure mating, and satisfaction is our guarantee. We are specializing on **BREEDING STOCK**. We do not sell package bees, nuclei, or virgin queens.

Prices for 1921.

1 to 4 inclus., $3.00 ea.
5 to 9 inclus., $2.90 ea.
10 or more, $2.80 ea.
Breeding Queens, $12.00 each

Write for our 1921 Catalog.

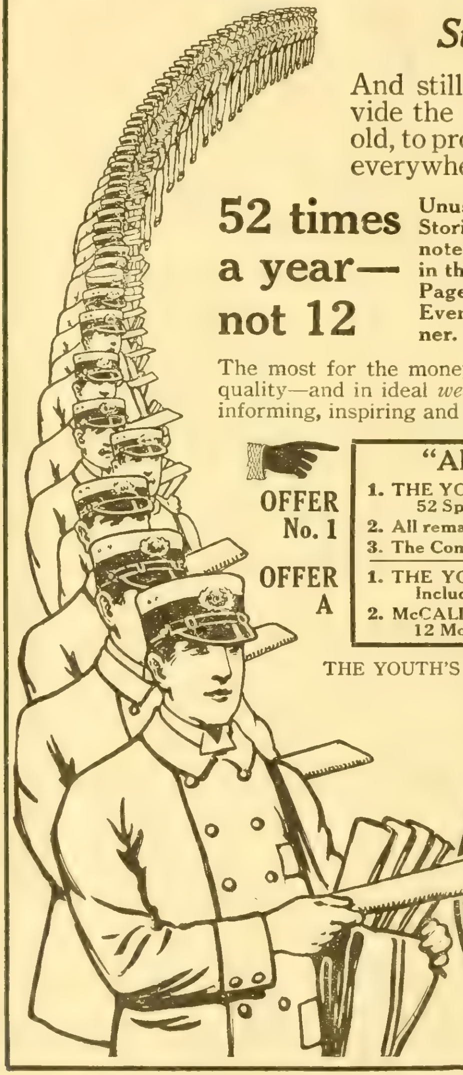
JAY SMITH

ROUTE 3. VINCENNES, INDIANA

52 Christmas Reminders in a Year

Fifty-two renewals of your Christmas morning delight
when the postman makes his weekly call with

The Youth's Companion



Still $2.50 a Year

And still the same in purpose—to provide the best of reading for young and old, to promote the welfare of the Family everywhere, in every way, at all times.

52 times a year— not 12

Unusual Serial Stories, Group Stories, Short Stories that interest all, Special Articles by noted authorities, "The best Editorial Page in the country," Poetry, Family Page, Boys' Page, Girls' Page, Children's Page, Current Events, Nature and Science, Doctor's Corner. An all-round weekly.

The most for the money—the greatest variety—the highest quality—and in ideal *weekly* portions. Entertaining, suggesting, informing, inspiring and full of fact and fun.

"All-Remaining-Issues" Offer

OFFER No. 1	1. THE YOUTH'S COMPANION for 1921 52 Splendid Weekly Issues X-1 2. All remaining 1920 Weekly Issues; also 3. The Companion Home Calendar Free	All for **$2.50**
OFFER A	1. THE YOUTH'S COMPANION . $2.50 Including all of Offer No. 1 2. McCALL'S MAGAZINE . . 1.50 12 Monthly Fashion Numbers	All for **$3.50**

THE YOUTH'S COMPANION, BOSTON, MASSACHUSETTS

THE YOUTH'S COMPANION
TRADE-MARK

ANOTHER CHRISTMAS
and
ANOTHER NEW YEAR

Haven't all of us connected in any way with beekeeping in America much to be grateful for at this Christmas time, and much to hope for from the New Year?

Just to suggest Europe and the hard and terrible conditions over there, involving the beekeepers as much as any other class, makes us glad indeed that we are here and not there—here where there are law and order and peace and plenty.

In these days of readjustment in this country, when we are getting back to normal, getting back to times when a dollar will again be a dollar, the beekeeper with his honey is better off generally than the farmer with his wheat and wool and fruit—and where he can secure or make a local market for his product he is far better off than the general farmer.

Looking forward to the New Year: It will continue to be a time of readjustment, but not of so violent readjustment as is now going on. Honey will begin the new year better and more widely advertised to American consumers than ever before. It has fair promise to be more extensively used than ever before, and the beekeeper can hope with us that the abnormal and monstrously high prices charged today for the iron and steel and tin and for the white pine and the basswood that go into his supplies, will have to drop, so that his supplies may be made cheaper and the prices reduced just as fast as costs will permit. We hope for this as much as any beekeeper can.

Then, recalling our beekeeping blessings here and now in America, and hoping for a prosperous season in 1921, let us wish each other a Merry Christmas and Happy New Year, and face the future with good courage and good sense.

THE A. I. ROOT COMPANY

MEDINA - - - - OHIO

TESTING DADANT'S FOUNDATION

From the first year of sale of DADANT'S FOUNDATION the Dadant firm had at least three hundred colonies of bees.

The tests for satisfactory foundation were made with their own bees, their aim being to manufacture and sell only such goods as would be satisfactory to their own bees, in their own apiary.

Every square inch equal to sample in every respect was the aim, and it was done at all times as thousands can testify who have used these goods.

Not satisfied with the mills they were using, they tried different workmen until they got a mill that would make a foundation without ''fishbone,'' as the beekeeper called it; and also got mills that would make foundation of different weights from five square feet to the pound for brood to thirteen square feet for sections.

A Dadant Apiary

Now the Dadant apiaries have increased to nearly a thousand colonies in ten apiaries. The different locations give a chance for tests in heavy flows, in light flows, in a dearth, for fall crop, for spring. All, so that the proper tests can be made, and only the most satisfactory foundation sent out to the many customers.

DADANT'S FOUNDATION

Every inch, every pound, every ton equal to any sample we have ever sent out. Specify it to your dealer. If he hasn't it write us.

DADANT & SONS, HAMILTON, ILL.

CATALOG AND PRICES ON BEE SUPPLIES, BEESWAX, WAX WORKING INTO COMB FOUNDATION, AND COMB RENDERING FOR THE ASKING